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The fight to save the planet: U.S. Armed Forces, Greenkeeping, and enforcement of the law pertaining to environmental protection during armed conflict.

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The Fight to Save the Planet: U.S. Armed Forces, "Greenkeeping," and Enforcement of the Law Pertaining to Environmental Protection During Armed Conflict

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Part I
Introduction

What Nature wishes should be said, She'll find the rightful voice to say![1]

From time immemorial war has visited its excesses on nature,[2] excesses that the Earth can less and less afford. Are the armed forces that are intended to protect us from harm[3] the very agents of our ultimate destruction? In waging wars are we losing the planet?

In a world already troubled by stratospheric ozone depletion, global warming, rain forest destruction, and myriad other local, regional, and transboundary environmental dangers,[4] the ecological depredations of the combatants in the recent conflicts in Afghanistan, Cambodia, Somalia, Rwanda, Bosnia-Herzegovina, and especially Kuwait, are further cause for great concern.[5] Extensive chemical weapons use, habitat and species destruction, and oil and

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[1]William Winter, *The Golden Silence*, *in* THE SHORTER BARTLETT'S FAMILIAR QUOTATIONS 430 (Kathleen Sproul ed., 1960). We neglect at our peril to heed Nature's call to action.

[2]From ancient times to modern the environment has been used as a weapon and as a target of war. Fire and flood are among the most prevalent examples, of which there are far too many to recount here. The Spartans salted Athenian fields during the Peloponnesian War. The Dutch opened dikes to create a water barrier (the "Dutch Water Line" of 1672) to halt the French in the Third Anglo-Dutch War. Both sides burned huge expanses of the *veldt* during the Boer War. Verdun was emaciated by artillery and poisoned with gas during World War I. A horrific loss of life and widespread devastation occurred when the Chinese dynamited the Huayuankow dike on the Yellow River during the Second Sino-Japanese War (1938). The United States extensively seeded clouds over the Ho Chi Minh Trail and defoliated large jungle tracts during the Vietnam War. *See, e.g.*, STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE, ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL 5-10 (Arthur H. Westing ed., 1984). Another chilling example is the contamination of Scotland's Gruinard Island during Britain's Anthrax testing in 1942; the island remains uninhabitable today. Margaret T. Okordudu-Fubara, *Oil in the Persian Gulf War: Legal Appraisal of an Environmental Warfare*, 23 ST. MARY'S L.J. 123, 156 (1991). Even the earliest of the modern commentators on the law of war, including no less a figure than the venerable Hugo Grotius, called for restraint in "(l)aying (w)aste" to things. HUGO GROTIUS, DE JURE BELLI AC PACIS 745-56 (Kelsey trans., 1925). *See also* Geoffrey Best, *The Historical Evolution of Cultural Norms Relating to War and the Environment*, *in* CULTURAL NORMS, WAR AND THE ENVIRONMENT 18 *et seq.* (Arthur H. Westing ed., 1988). The Huayuankow dike incident of 1938 probably ranks as the most infamous of all. In this incident thousands of Japanese troops were killed but so were hundreds of thousands of Chinese. Millions were displaced and millions of acres were devastated. Mark J. T. Caggiano, *The Legitimacy of Environmental Destruction in Modern Warfare: Customary Substance Over Conventional Form*, 20 B.C. ENVTL. AFF. L. REV. 479, 489 n.73 (1993).

[3]Environmental protection, like self-defense, is a duty of government. *See* Okordudu-Fubara, *supra* note 2, at 125.

[4]*See* James T. McClymonds, Note, *The Human Right to a Healthy Environment: An International Legal Perspective*, 37 N.Y.L. SCH. L. REV. 583, 585 (1992). *And see* MICHELLE L. SCHWARTZ, NATURAL HERITAGE INSTITUTE, PRELIMINARY REPORT ON LEGAL AND INSTITUTIONAL ASPECTS OF THE RELATIONSHIP BETWEEN HUMAN RIGHTS AND THE ENVIRONMENT 1-3 (1991).

[5]International armed conflict is itself a form of transboundary pollution. Military operations of all kinds create pollution hazards which may be amplified by the introduction of substances and activities into areas that are

hazardous waste pollution are but a few of the adverse environmental impacts that occurred in the Balkans, Africa, the Middle East, and Asia.[6] Even today the full long-term health and environmental effects of these (and prior) conflicts are not known and it is uncertain how long it will take to acquire a complete understanding of how to remediate past and prevent future occurrences.[7]

The need to protect the environment against unjustified damage during armed conflict glares ominously through the waning twilight of the 20th Century. Weapons of war grow ever more virulent, greatly increasing the risk of harm to the environment from mere incidental damage, to say nothing of the intentional destruction of the environment.[8] Conventional weapons of frightening destructive capacity proliferate unendingly while weapons of mass destruction, despite significant legal restrictions, remain plentiful, some in new and untested hands. And

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especially susceptible to environmental degradation. For example, the mere operation of armored vehicles in Saudi Arabia, Kuwait, and Iraq are believed to have had a significant impact on the reportedly fragile desert ecosystem. *See* Okordudu-Fubara, *supra* note 2, at 136. *And see* Virginia Morris, *Protection of the Environment in Wartime: The United Nations General Assembly Considers the Need for a New Convention*, 27 INT'L LAW. 775, 776 n.5 (1993). The magnitude of the DESERT STORM waste management problem alone was enormous. *See* Jeremy Leggett, *The Environmental Impact of War: A Scientific Analysis and Greenpeace's Reaction, in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR 74 (Glen Plant ed., 1992). Unexploded ordnance, especially from submunitions, remains a major problem throughout this region, as in other theaters of war. *See* William M. Arkin, The Environmental Threat of Military Operations 14-17 (Aug. 9, 1995) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI).

[6]To some, the 1990-91 Persian Gulf War was the first example of environmental warfare. For instance: "Until the Persian Gulf Conflict, war and environmental damage arose independently, from time to time, as threats to our survival." and "To the horror of the international community, the Persian Gulf Conflict brought about the 'marriage' of war and environmental damage and the 'birth' of a new menace - deliberate wartime destruction of the environment." Anthony Leibler, *Deliberate Wartime Environmental Damage: New Challenges for International Law*, 23 CAL. W. INT'L L.J. 67, 68 (1992). The Gulf War brought the issue into sharp focus, but the practice of environmental warfare is certainly not new. *See supra* note 2; *see infra* part II.A.2.

[7]The mysterious causes of "Gulf War Syndrome," for example; the undiscovered effects of "Yellow Rain" and "Agent Orange." for others. *See* Bradley Graham & David Brown, *U.S. Troops Were Near Toxic Blast in Gulf*, WASH. POST, Jun. 22, 1996, at A1 ("Several blue-ribbon panels of scientists . . . have examined the issue and concluded that there is no single explanation for [Gulf War Syndrome].").

[8]*See, e.g.*, Stephanie N. Simonds, *Conventional Warfare and Environmental Protection: A Proposal for International Legal Reform*, 29 STAN. J. INT'L L. 165, 165-66 (1992).

ironically, the environment itself may be the most potent weapon of all, a weapon that can be manipulated as easily by simple means as by technologically sophisticated ones.[9]

To help stem the tide of environmental catastrophe in war, international law must be strengthened and better enforced.[10] The question of how best to protect the environment during armed conflict[11] received intense scrutiny following the 1990-91 Persian Gulf War ("Gulf War").

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[9]Compare, for example, the complexity involved in cloud seeding over Vietnam with the rank simplicity of the oil well fires in Kuwait and the dumping of oil into the Persian Gulf. As to the former, an instance of hostile environmental modification, *see, generally*, ARTHUR H. WESTING, ECOLOGICAL CONSEQUENCES OF THE SECOND INDOCHINA WAR (1976). As to the latter, an instance of intentional environmental damage, *see, e.g.*, Shilpi Gupta, Note. *Iraq's Environmental Warfare in the Persian Gulf*, 6 GEO. INT'L L. REV. 251 (1993). *N.B.* Environmental modification and environmental damage may be distinct, but they are without any real difference. Environmental modification like cloud seeding may be benign in its own right, causing only rain with no apparent long-term damage to the atmosphere. The foreseeable effects of cloud seeding, however, may include long-term, widespread, and severe environmental damage: torrential rains may cause excessive erosion which may have significant impact on water quality throughout a watershed, which may have significant impact on the ability of all species, humans included, to survive in that ecosystem.

[10]The mainstream view in 20th Century international law, arising out of the St. Petersburg Declaration of 1868 ("(T)he progress of civilization should have the effect of alleviating, as much as possible the calamities of war."), is that armed conflict should be constrained by humanitarian considerations, i.e., that mitigation of the effects of armed conflict is preferable to unrestricted warfare. Declaration Renouncing the Use, In Time of War, of Explosive Projectiles Under 400 Grammes Weight, International Military Commission at St. Petersburg, Dec. 11, 1868 *reprinted in* LOUIS HENKIN ET AL., BASIC DOCUMENTS SUPPLEMENT TO INTERNATIONAL LAW (THIRD EDITION) 406 (3d ed. 1993). The opposing view is that unconditional war is its own best deterrent, that prospective belligerents will seek to avoid the full horrors and destructiveness of war. In some respects, the theory of mutually assured destruction (nuclear annihilation) operated successfully on this principle during most of the Cold War. The corollary of the mainstream view is that restrained warfare is more likely for the very reason that prospective belligerents are at less risk. This, of course, is indeterminable. This paper shares the view that legal restraints on armed conflict are beneficial and the best means by which to achieve the ultimate elimination of war. Protections for the environment during armed conflict must be based on legal, not merely moral obligations. *See* Betsy Baker, *Legal Protections for the Environment in Times of Armed Conflict*, 33 VA. J. INT'L L. 351, 358 (1993). The environment must be made part of the rationality calculus of the law of armed conflict. *See* Michael D. Diederich, Jr., *"Law of War" and Ecology: A Proposal For a Workable Approach to Protecting the Environment Through the Law of War*, 136 MIL. L. REV. 137, 139 (1992).

[11]The harm with which this paper is concerned is that which results from military operations involving armed conflict; excluded is enforcement of environmental standards and requirements during peacetime. Thus, whether retrograde support for the overseas re-deployment of an armored division may incidentally involve a transboundary movement of hazardous waste under the Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel, 1989), U.N. Doc. UNEP/IG. 80-3 (1989), is beyond the scope of the paper, while rear echelon defoliation for purposes of guerrilla suppression would not be. Also beyond the scope of the paper, for example, is whether a combat-damaged ship would be liable for oily discharge into territorial waters of the United States under the Oil Pollution Act of 1990, 33 U.S.C. § 2701 *et seq.*, while the intentional scuttling of a chemical munitions ship in continental shelf fishing grounds would not be. *And see infra* note 382.

The importance of the matter is undiminished in a world rife with animosities that could boil over anytime into armed conflict.[12]

Among the most intractable problems, effective enforcement, long considered a weak aspect of international law stands out. Two primary schools of thought have developed on how to proceed.[13] One school holds that existing law is adequate and needs only better implementation.[14] The other school holds that a new convention is needed.[15]

Demands are now heard from many quarters for greater protection against and accountability for wartime environmental damage.[16] For their part, states have begun to see environmental protection, resource conservation, and sustainable development in strategic terms.[17] The scope and complexity of many environmental issues, particularly those involving the global commons, bring states ever closer to conflict in their competition for dwindling resources and in their desire to protect themselves from environmental degradation caused by other states. For individual states and the world community at-large, the stakes are rising.

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[12]Oil rich waters within the exclusive economic zones of several island groups - the Spratlys in the South China Sea, Imia in the Aegean Sea between Greece and Turkey, and Abu Musa and other Iranian-occupied islands near the Strait of Hormuz - are already sources of bitter controversy and the flexing of military muscle. Richard C. Hottelet, *Dangerous Isles: Even Barren Rocks Attract Attention*, CHRISTIAN SCI. MONITOR, Mar. 7, 1996, at 18.

[13]There are numerous "camps" and "schools" described in the current literature with a variety of overt and subtle distinctions. *See, e.g.*, J. Ashley Roach, *The Laws of War and the Protection of the Environment*, ENV'T & SECURITY J. (forthcoming 1996) (manuscript at 8-9, on file with the author); Simonds, *supra* note 8, at 210 and n.217 ("The debate following the Gulf War has divided most commentators into two camps: those who conclude that the current framework of international law sufficiently protects the environment during war, and those who propose enacting a new convention to govern environmental destruction during war." "The U.S. government falls into this [first] camp." "The U.S. Department of Defense is concerned that specific rules prohibiting environmental destruction could impair legitimate U.S. defense requirements . . . .").

[14]This school will be referred to as the "guidelines" approach. *See infra* part III.B.

[15]This school will be referred to as the "new treaty" approach. *See infra* part II.E.

[16]Leibler, *supra* note 6, at 117; *and see* Okordudu-Fubara, *supra* note 2, at 125. To say that peoples desire legal reform is not to admit that states have committed themselves to it. It is typical in matters of the development of legal rights that societal values congeal before legal principles evolve, and well before accordant state practice commences.

[17]*See, e.g.*, Joseph C. Strasser, *President's Notes*, NAVAL WAR C. REV., Winter 1995, at 4, 5. "Over the last decade, environmental degradation and resource scarcity have come to be perceived as threats not only to human well-being and prosperity, but also to international security." Jutta Brunnée, *Environmental Security In the Twenty-first Century: New Momentum for the Development of International Environmental Law*, 18 FORDHAM INT'L L.J. 1742 (1995).

Over the last quarter-century, two dramatic, largely unforeseen developments occurred: the dissolution of the Soviet Union, resulting in the end of Cold War nuclear confrontation;[18] and, the explosive growth of the *corpus juris* of environmental law, both domestic and international.[19] These events, while seemingly unrelated, have combined to create conditions in which the world community is better able, if not obliged, to refine and strengthen the law pertaining to environmental protection during armed conflict. Regrettably, a consensus that it should be done and a compelling impetus for it to be done do not equate to agreement on how to do it.

The sizable literature that has been written in this field over the last five years is focused almost exclusively on the Gulf War and how the existing law of armed conflict[20] is or is not adequate to address the environmental calamity that occurred during the few months of that relatively short regional conflict. While the Gulf War unquestionably provided ample incentive for the conferences, symposia, intense scholarship, and prolific literature that followed, the work in this field must be expanded beyond the law armed conflict and it must address itself to the most difficult issue - enforcement. We must turn our attention, not away from the Gulf War, but to armed conflict in a broader sense, especially armed conflict which is non-international.[21] We

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[18]Nuclear holocaust is the ultimate example of environmental damage in wartime. No other known form of warfare comes close to the destructive potential previously inhering in a full nuclear exchange between the United States and the former Soviet Union. While the legality of the possession and use of nuclear weapons is beyond the scope of this paper, the legal restraints imposed on these weapons are salient to our considerations here. Developments on the legal status of nuclear weapons should be monitored carefully.

[19]*See, e.g.*, Leibler, *supra* note 6, at 136-37.

[20]In this paper, the term "law of armed conflict" will be used, interchangeably with the term "law of war," to denote the body of international law, customary and conventional, pertaining to the use of armed force. The term "humanitarian law" will be used to denote the body of international law, customary and conventional, pertaining to the protection of persons and objects from the effects of armed conflict, *i.e.*, primarily the Geneva Conventions of 1949 and the Additional Protocol thereto of 1977. While one might say that the former (the law of armed conflict) is really only a part of the latter (humanitarian law), it will be helpful for our purposes to distinguish between the two. As regards the term "law of armed conflict," one must also distinguish whether it is being used in the context of the *jus in bello* (the law pertaining to the use of force during armed conflict) or the *jus ad bellum* (the law pertaining to the right to use force). *See, e.g.*, Leibler, *supra* note 6, at 96-98. The law of armed conflict, or the "Hague law," is distinguished by some from humanitarian law, or "the Geneva law." *See* Richard Falk, *The Environmental Law of War: An Introduction, in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR 83 (Glen Plant ed., 1992). The Hague Regulations contain a number of humanitarian provisions. *See* Hague Regulations, *infra* note 268.

[21]The prevailing view is that armed conflict of the future will occur on a regional or lower level and will be conventional (as opposed to nuclear.) *See, e.g.*, CHAIRMAN OF THE JOINT CHIEFS OF STAFF, JOINT WARFARE OF

should keep in mind that future armed conflict may differ from the Gulf War as much as that conflict differed from the Vietnam War.[22] The ultimate test of legal solutions, especially enforcement mechanisms, is their ability to remedy *un*predictable future events.

A broad and complex problem requires a comprehensive solution. A comprehensive solution in this context must be interdisciplinary, a melding of the law of armed conflict, humanitarian law, and international environmental law.[23] Too much of the work that has been done in this field has been grounded exclusively or predominantly in only one, namely, the law of armed conflict.[24] In this, the United Nations Decade of International Law, we need to forge a partnership of "greens" (the environmental community) and "khaki" (the military).

The partnership of "greens" and "khaki" should adopt among its primary objectives the attainment of effective means of enforcement of the law pertaining to environmental protection during armed conflict. Of central importance is the role that armed forces will play. Should armed force be used as an enforcement mechanism? And if so, when? And how? To fully analyze this potentially drastic remedy, five questions must be answered. They are: Do we need a convention

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THE U.S. ARMED FORCES 2-4 (JOINT PUBLICATION 1 1991); Charles R. Larson, *Personal Reflections on the Use of Military Force and Its Relevance to National Security Strategy,* NAVAL WAR C. REV., Spring 1995, at 83; Inis L. Claude, Jr., *The United States and Changing Approaches to National Security and World Order,* NAVAL WAR C. REV., Summer 1995, at 46.

[22]We must be continually vigilant to changes in the nature of warfare and its implications for the roles of international law, security strategy, and the use of armed forces. *See* Colin S. Gray, *The Changing Nature of Warfare?*, NAVAL WAR C. REV., Spring 1996, at 7. *See also* Gupta, *supra* note 9, at 273.

[23]*See* W. Paul Gormley, *The Legal Obligation of the International Community to Guarantee a Pure and Decent Environment: The Expansion of Human Rights Norms*, 3 GEO. INT'L ENVTL. L. REV. 85, 90 (1990).

[24]Characteristic of the dichotomy that exists here is the view that the law of armed conflict is "superior" to international environmental law. *See* Bernard K. Schafer, *The Relationship Between the International Laws of Armed Conflict and Environmental Protection: The Need to Reevaluate What Types of Conduct are Permissible During Hostilities*, 19 CAL. W. INT'L L.J. 287, 319 (1989) ("In a time when state survival could always be considered independently of human survival, the view was amply justified. That is not to suggest that state survival and human survival are now inextricably linked, but they grow ever more so. The result is that the traditional superiority of the law of armed conflict must be re-evaluated."). A similar problem has been experienced with the law of armed conflict and humanitarian law. Consider the following: "It is common practice to distinguish, and to treat as a separate subject, the humanitarian law applicable during hostilities." and "In fact, the two bodies of law overlap and individuals in war and hostilities enjoy rights under the law of human rights." LOUIS HENKIN, ET AL., INTERNATIONAL LAW 598 (3d ed. 1993). One of the themes in this paper is that synthesis, not compartmentalization, of the law of armed conflict, humanitarian law, and international environmental law pertaining to environmental protection during armed conflict is imperative, especially if no new convention on environmental protection during armed conflict is forthcoming.

relative to protection of the environment during armed conflict?; Are we likely to achieve such a convention in the foreseeable future?; If not, then how can the law pertaining to environmental protection during armed conflict be advanced in the meantime?; What *is* the existing law relative to protection of the environment during armed conflict?; and, How can existing law be strengthened and enforced? This paper answers these questions.

Part II
Do We Need A Convention Relative To Protection Of The Environment During Armed Conflict?

In this part we will examine the impact of armed conflict on the environment. We will observe that war is inherently destructive to the environment and that environmental destruction will remain a certain consequence of armed conflict. We will briefly note the increasing destructive capacity of modern weaponry and the declining carrying capacity of the Earth, that is, the Earth's ability to absorb environmental catastrophe on a large scale. We will then explore protection of the environment, the emerging right to a safe environment, and its corollary, intergenerational equity. Having concluded that protection of the environment needs a legal status commensurate with its importance to human survival, *viz.*, that incidental protections are not enough, we will discuss the need for a multilateral framework convention on environmental protection during armed conflict and how the convention-protocol process might be used to provide practical solutions to resolving complex and contentious issues. Finally, we will review the Fifth Geneva Convention proposed by Greenpeace International.

A. *The Impact of Armed Conflict on the Environment*

1. War is Inherently Destructive to the Environment.

Environmental damage in wartime is inevitable.[25] At present, war without damage and destruction is inconceivable.[26] Take for instance this simple illustration: A high-explosive artillery

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[25]William A. Wilcox, Jr., *Environmental Protection in Combat*, 17 S. ILL. U.L.J. 299, 309 (1993) (quoting

round fired against an enemy missile battery in an orange grove, assuming that it lands on target, will destroy or damage (pollute or partially destroy or injure in a physical sense) not only its military target but some part of the surrounding area and its natural resources. The projectile and its related components may introduce harmful substances into several media; combustion gases (at the point of firing and at the point of impact) may introduce harmful substances into the air. A variety of species (*flora* and *fauna*) may be killed or injured outright or as the result of habitat modification, and the productive capacity of the grove will be diminished or destroyed. The consequences magnify many fold when weapons of mass destruction are employed.[27]

Environmental damage occurs with any adverse, incremental change in the existing status of the environment.[28] What, then, is the "environment"? There are many definitions but none is

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Antoine Bouvier, *Protection of the Natural Environment in Time of Armed Conflict*, 285 INTL REV. RED CROSS 567, 569 (1991)). *See also* The American Society of International Law, *The Gulf War: Environment as a Weapon*, 85 AM. SOCY INTL L. PROC. 214, 220 (1991) (remarks of Sebia Hawkins) *and* Leggett, *supra* note 5, at 68.

[26]Wilcox, *supra* note 25, at 310. "Protecting the environment during armed conflict is a particularly vexing dilemma because of the inherent destructive nature of war." Walter G. Sharp, Sr., *The Effective Deterrence of Environmental Damage During Armed Conflict: A Case Analysis of the Persian Gulf War*, 137 MIL. L. REV. 1, 65 (1992).

[27]Collateral environmental effects will be experienced with every type of weapon and munition with the possible exception of lasers. The effects, of course, vary with the type of munition and the manner in which it is delivered. Even the simple illustration used here points out the difficulty encountered in this area. For example, the same missile battery could be destroyed by napalm bombs with far greater environmental damage almost assuredly resulting. Napalm, of course, is not the weapon of choice in this scenario (*see* Plant, *infra* note 271) (Conventional Weapons Convention) and it puts a multi-million dollar aircraft and its highly-trained aircrew at risk, but it is effective in its ability to disable or destroy the target. Less collateral environmental damage than even the artillery strike would likely result if the missile battery were incapacitated by special forces action. This, too, puts personnel at risk of injury, death, or capture. Does, or should, the law allow the special forces action or the artillery strike but not napalm bombing? What if the only option reasonably available to the on-scene commander was napalm? Wouldn't the commander still be justified in ordering destruction of the battery in order to neutralize that deadly threat to his own forces? What if the battery was only a single hand-held anti-aircraft missile launcher positioned atop a nuclear power plant? Would any attack on the battery that could breach the integrity of the reactor be justified militarily compared with the potential harm that might occur? Questions, more than answers, abound. Article 56 of Protocol I addresses attacks against facilities containing dangerous forces such as nuclear power plants. *See infra* part V.B.2 . A series of five resolutions of the General Conference of the International Atomic Energy Agency (IAEA) condemns attacks on nuclear facilities. U.N. General Assembly Resolution 45/58J of Dec. 4, 1990, citing two of the IAEA resolutions, does also. *See* Plant, *infra* note 271.

[28]Sharp, *supra* note 26, at 32. Defining "environmental damage" is hardly less difficult than defining "environment." Damage would certainly include injury or destruction in the physical sense, for example, trees killed by herbicides, but it would also include pollution, another widely used but imprecise term. David Tolbert, *Defining the 'Environment,' in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR 258 (Glen Plant ed., 1992).

accepted universally.[29] One might define it as the sum total of the components and constituents of the atmosphere, biosphere, geosphere, hydrosphere, and lithosphere.[30] Another definition is that the environment is anything that is not man-made.[31]

States have been reluctant to extend the definition of "environment" to such things as natural resources, climate modification, biodiversity, and ecosystems for fear of limiting their military options.[32] The definition of the U.S. Council on Environmental Quality - "the natural and physical environment and the relationship of people with that environment"[33] - illustrates the problems of breadth, ambiguity, and circularity that plague this most basic concept, *viz.*, what it is we are attempting to protect. As will be seen in Part VI, however, the real controversy lies not in defining "environment" but in establishing the threshold of environmental damage that will give rise to a violation of international law.[34]

2. Environmental Destruction Will Remain a Fixture of Armed Conflict.

Armed conflict will continue to produce environmental damage for the foreseeable future.[35] While it may be true that technological advancements have brought us to the age of so-

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[29]Michael A. Meyer, *A Definition of the 'Environment,' in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR 255 (Glen Plant ed., 1992); Tolbert, *supra* note 28, at 257. Tolbert analogizes the difficulty of defining "environment" with the difficulty of defining "pornography." One may know it when one sees it, but it's hard to give a workable, yet all-encompassing definition. In this matter there are humanocentric as well as naturocentric views, as there are with the definition of the right to a safe environment. *Id.* at 259; *and see infra* part II.C.1.

[30]*See* Westing, *supra* note 2, at 3; Okordudu-Fubara, *supra* note 2, at 144. This is the approach taken in the ENMOD Treaty, art. II. *See infra* part V.C.5.

[31]Sharp, *supra* note 26, at 32. The term "not man-made" would theoretically exclude genetically engineered or improved species.

[32]Meyer, *supra* note 29, at 256; Tolbert, *supra* note 28, at 260.

[33]40 C.F.R. § 1508.14.

[34]Articles 35 and 55 of Protocol I prohibit widespread, long-term, and severe environmental damage, both intentional and that which is reasonably foreseeable. It would seemingly be a high threshold, *see* Simonds, *supra* note 8, at 174-75, but the standard was left purposefully undefined. MICHAEL BOTHE ET AL., NEW RULES FOR VICTIMS OF ARMED CONFLICT: COMMENTARY ON THE TWO 1977 PROTOCOLS TO THE GENEVA CONVENTIONS OF 1949 346 (1982); *and see* Henry H. Almond, Jr., *Weapons, War and the Environment*, 3 GEO. INTL ENVTL. L. REV. 117, 130 (1990).

[35]Hopeful alternatives are "unarmed conflict" and "non-violent conflict resolution." As to the former, see Stephen C. Neff, *Towards a Law of Unarmed Conflict: A Proposal for a New International Law of Hostility*, 28 CORNELL INTL L.J. 1 (1995). As to the latter, see Arthur H. Westing, *Towards Non-Violent Conflict Resolution and Environmental Protection: A Synthesis, in* CULTURAL NORMS, WAR AND THE ENVIRONMENT 151 *et seq.* (Arthur H. Westing ed., 1988). Both of these concepts (in essence forms of compulsory and binding arbitration) depend on

called "smart" weapons,[36] not every combatant has "smart" weapons in its arsenal and even those powers with "smart" weapons may not use them exclusively. For example, in the Gulf War, the United States mixed laser-guided bomb and missile attacks on Iraqi military installations with "carpet bombing" of the Iraqi Republican Guard. The former were much reported on the nightly television news; the latter was a much greater portion of the total ordnance expended in the air campaign.[37] Despite significant advances, "surgical precision" in the delivery of weapons is not yet the norm even among the best of modern armed forces.[38]

In some cases, decidedly "low-tech" weapons such as contact naval mines remain militarily useful and are plentiful.[39] They also have the advantage of being affordable by poor nations and nations without the capability to employ sophisticated weapons systems. Other powerful "poor man's" weapons include gas-enhanced explosives and biological and chemical weapons.[40] As the level of a weapon's sophistication decreases, the risk of collateral damage and injury to protected objects and values increases.

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states exercising a degree of self-restraint heretofore unknown. On the other hand, if the environmental catastrophe happens that many believe to be close-at-hand, then our crisis-driven legal systems may respond in dramatic new ways, if it isn't by then too late, that is.

[36]The destructive power of a single stealth bomber strike (1 bomb) equals that of 95 B-52 raids (190 bombs) during the Vietnam War and that of 4,500 B-17 raids (9,000 bombs) during World War II. Frank R. Finch, This Land Is Our Land: The Environmental Threat of Army Operations 18 (Sept. 20, 1995) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI).

[37]"Of the 88,500 tonnes dropped in total by the Coalition forces in the Gulf War, only 6,500 (7.4 per cent) were precision-guided." Leggett, *supra* note 5, at 73. "A single B-52 bomber carrying 40 CBU-87/Bs [each of which contain 202 individual bomblets], can carpet-bomb 176 million square yards, or 27,500 football pitches. Twenty-eight B-52s dropped 470 tonnes of these on 30 January 1991 alone; a quantity which could in principle have obliterated 1,600 square miles, an area one-third the size of the state of Connecticut." *Id.* at 74.

[38]*See, e.g.,* John Mintz, *High-Tech Weaponry Not Infallible: Israeli Use of Systems Called Into Question*, WASH. POST, Apr. 19, 1996, at A33. Two American made computerized fire control systems, the "Firefinder" counter-battery targeting system and the "Patriot" anti-missile defense system, have been used by the Israelis with success, but their record of performance is by no means perfect, as evidenced in the case of the Firefinder by the killing of 90 refugees in the apparently inadvertent shelling of a U.N. compound in southern Lebanon. *Id.*

[39]Recall the image of the supertanker *Bridgton* leading its U.S. Navy escorts through mine-infested waters of the Persian Gulf during the 1980's "Tanker War." The irony of the protectors becoming the protected is all the more powerful when one considers how great a threat was posed by World War II-vintage mines and how easily and quickly the Iranians laid them.

[40]The bombing of the Marine barracks in Beirut in 1983 and last year's bombing of the Oklahoma City federal building are two frightening examples of the crude simplicity and awesome power of "home-made" bombs.

Tolerance of environmental damage during war is deep-rooted.[41] Many ethical traditions value nature, Judaeo-Christian, Muslim, Greek, and Taoist among them, but none of these ancient cultural norms have operated in any significant way to limit environmental destruction in wartime.[42] Indeed, tolerance for environmental damage may be growing despite advancing military technologies that promise a lessening of adverse environmental impact.[43]

B. *The Declining Carrying Capacity of the Earth*

1. The Capacity of the Earth to Absorb Environmental Catastrophe is Declining.

> *As the capabilities of our planet to avoid environmental catastrophe on the one hand and military catastrophe on the other continue to diminish, one can only hope that moral, legal, common sense or other restraint will prevent techniques of environmental warfare of today or tomorrow from exacerbating our growing dilemma. Thus the nations of the world disregard at their peril the fifth general principle of the World Charter for Nature that, "Nature shall be secured against degradation caused by warfare or other hostilities.*[44]

In similar words many writers recount the staggering individual and cumulative consequences and effects of war and pollution.[45] Environmental damage during armed conflict

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[41]Almond, *supra* note 34, at 137. "The neglect of the environment as a distinct concern was consistent with the overall view of Western civilization that nature existed solely for the glory of humankind. International law, in its formative period, reflected the anti-nature bias of our civilization." Richard Falk, *Environmental Disruption by Military Means and International Law*, *in* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL 36 (Arthur H. Westing ed., 1984).

[42]Christopher D. Stone, *The Law as a Force in Shaping Cultural Norms Relating to War and the Environment, in* CULTURAL NORMS, WAR AND THE ENVIRONMENT 64, 67-69 (Arthur H. Westing ed., 1988). In the Old Testament (Dueteronomy 20:19) may be found the admonition: "When thou shalt besiege a city a long time, in fighting against it to take it, thou shalt not destroy the trees thereof by forcing an axe against them: for thou mayest eat of them, and thou shalt not cut them down: for is the tree of the field a man that it should be besieged by thee?" Leibler, *supra* note 6, at 67. The Koran (AL QUR'AN 25:63) contains the plaudit: "For the true servants of the Most Gracious are those who tread gently on the earth." Sharp, *supra* note 26, at 1.

[43]Henry H. Almond, Jr., *Strategies for Protecting the Environment: The Process of Coercion*, 23 U. TOL. L. REV. 308- 309 (1992). "In the Second World War, and in subsequent wars, states showed that they could use force, seemingly untroubled about the increasing destructiveness of their attacks and their unwillingness to constrain themselves against that destructiveness." *Id.* at 309. "(T)he trends in using force for the full impact of its shock are so strongly entrenched in state practice that we can reasonably expect that they will use the instruments of war or destruction as freely in the future as they have in the past." *Id.*

[44]Westing, *supra* note 2, at 10.

[45]*See, e.g.*, Brunneé, *supra* note 17, at 1742; Schwartz, *supra* note 4, at 1; Gormley, *supra* note 23, at 86 (" '(M)an has become the endangered species' . . . so pressing is the danger of ecological destruction by pollution."). *See infra* part II.C.1.

and "environmental exhaustion" due to over-consumption and pollution threaten the Earth's "global carrying capacity," i.e., the adequacy of planetary resources to sustain life.[46] War and preparations for war consume vast amounts of natural resources.[47] Military operations other than war, such routine things as weapons exercises and shock testing of new naval vessels, also have the potential to cause environmental damage.[48]

We may only speculate how much more abuse the planet can take before irreversible damage of cataclysmic dimension will occur.[49] On the other hand, many believe that the dire predictions of environmentalists are exaggerated.[50] Uncertainty, however, suggests caution, not minimization.[51]

One virtual certainty is that a conventional world war on the scale of World War II or worse, a thermonuclear war, is on environmental grounds alone too devastating to permit if by any reasonably practical means it can be deterred or prevented.[52] Even in a regional conflict,

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[46]Arthur H. Westing, *Constraints on Military Disruption of the Biosphere: An Overview, in* CULTURAL NORMS, WAR AND THE ENVIRONMENT 1 (Arthur H. Westing ed., 1988).

[47]*Id.* at 3.

[48]*See, e.g.,* Joseph G. Garrett III, The Army and the Environment: Environmental Considerations During Army Operations 12-15 (Sept. 20, 1995) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI); Bruce Harlow, International Environmental Law Considerations During Military Operations Other Than War 13-16 (Undated) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI).

[49]Gormley, *supra* note 23, at 87; Jennifer A. Downs, Note, *A Healthy and Ecologically Balanced Environment: An Argument for a Third Generation Right*, 3 DUKE J. COMP. & INT'L L. 351, 380 (1993).

[50]*E.g.,* "(T)he tendency of some environmentalists in the weeks before the outbreak of the 1991 Gulf War to forecast utter environmental catastrophe on a global scale may have reduced their credibility and effectiveness." Adam Roberts, Environmental Issues in International Armed Conflict: The Experience of the 1991 Gulf War 59 (Undated) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI). *Cf.* Brunneé, *supra* note 17, at 1743 ("(E)nvironmental decline continues and ever more complex, pervasive, and urgent problems arise.").

[51]McClymonds, *supra* note 4, at 613 ("(S)ubstances or activities that may be harmful to the environment should be regulated even if conclusive scientific evidence of their harmfulness is not yet available.").

[52]The effects of nuclear, chemical, and biological weapons are indiscriminate almost by definition. Schafer, *supra* note 24, at 304. Once released against population centers, their effects cannot be controlled. To some they are the textbook example of the type of weapons that can cause widespread, long-term, and severe environmental damage. Almond, *supra* note 34, at 170. Newly arising threats from these weapons include alleged nuclear piracy from the former Soviet Union and domestic terrorism such as Japan recently experienced during the subway gas attacks.

destruction of nuclear or chemical weapons facilities could have all of the harmful effects of Chernobyl or the Sandoz fire with potentially greater and longer lasting consequences.[53] What may tip the balance of nature toward calamity cannot be regarded lightly.

2. The Destructive Capacity of Modern Weaponry Continues to Increase and to Expand Into Such New Areas as Environmental Modification.

> *(M)odern warfare's ability to destroy nature has become increasingly formidable . . . . (I)n addition to the destructive capabilities of nuclear, chemical, and biological weapons, the capability of conventional weapons to damage larger geographical areas has increased dramatically.*[54]

In this era of maneuver warfare, the battlefield has grown larger as has the conventional firepower that can brought to bear.[55] Conventional weapons are not the only concern; it is far too early to discount the threat from nuclear weapons.[56] The Nazi invasion of the Soviet Union in World War II and the air assault tactics of the United States in Vietnam graphically illustrate

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Massive pollution, of which bacteriological contamination would be a perfect example, might even rise to the level of genocide. *See* Schafer, *supra* note 24, at 306-307; *and see* David Hoffman, *Russia's Nuclear Sieve: Moscow Meeting to Focus on Plugging Safety Gaps*, WASH. POST, Apr. 17, 1996, at A25 ("Today, Russia is a giant, unstable nuclear heap, with hundreds of facilities harboring at least 200 tons of plutonium and 800 to 1,200 tons of highly enriched uranium spread across thousands of miles."). Nuclear weapons testing is also a source of environmental damage. Gormley, *supra* note 23, at 93.

[53]Consider, for example, the problem of bio-accumulation resulting from the introduction of toxic substances into the aquatic food-chain as a result of submarine warfare. Consider also the myriad effects of the destruction of toxic chemical production facilities, such as those that suffered deadly releases during peacetime including the Agent Orange plant in Seveso, Italy (1976), the methyl-isocyanate plant in Bhopal, India (1984), and the Sandoz insecticide plant in Basel, Switzerland (1986). *See* Schafer, *supra* note 24, at 319-24.

[54]Simonds, *supra* note 8, at 165.

[55]*Id.* n.2.

[56]Almond, *supra* note 34, at 178-79. Indeed, the nuclear threat is the genesis of much of the thought on environmental protection during armed conflict. *See* Richard A. Falk, *The Special Challenge of Our Time: Cultural Norms Relating to Nuclearism*, *in* CULTURAL NORMS, WAR AND THE ENVIRONMENT 53 *et seq.* (Arthur H. Westing ed., 1988); *and see* Almond, *supra* note 34, at 126. A 1980 resolution of the U.N. General Assembly noted "the disastrous consequences" of nuclear war and urged states to preserve "nature for present and future generations." General Assembly Resolution 35/8 (Oct. 30, 1980), *quoted in* Diederich, *supra* note 10, at 144 n.39. Parenthetically, the non-proliferation and disarmament initiatives spawned by the anti-nuclear movement are themselves means of protecting the environment during armed conflict. The arms control apparatus of the Cold War offers facilities for the enhancement of environmental security. *See* Stephen J. Orava, Note, *Waging the Next War: The Carryover of Arms Control Verification Procedures to International Environmental Law*, 5 GEO. INTL ENVTL. L. REV. 151, 163, 169 (1992) *and* Almond, *supra* note 43, at 321. It is not "sheer coincidence" that arms control and disarmament treaties "are directly or indirectly laced with environmental protection objectives." Okordudu-Fubara, *supra* note 2, at 128.

the breadth, depth, and lethality of the modern battlefield in very different conditions of terrain and climate. Storied battlefields of the past - Masada, Agincort, Culloden, Waterloo, Gettysburg, and even Gallipoli - pale by comparison.

Twentieth century technology has made possible destructive forces of unprecedented virulence.[57] Thus, "(a)rmed forces are clearly capable of inflicting an impermissible level of environmental damage that goes beyond what the international legal and moral conscience otherwise would permit during armed conflict."[58] In this new era, the era in which "total war"[59] was introduced, it is all the more difficult but all the more important to "judge exactly what military actions are excessive."[60]

A curious irony of modern war is that in future armed conflicts combat casualties may be fewer than those occurring from environmental catastrophes.[61] The largest number of likely casualties from a wartime environmental catastrophe are, of course, noncombatants, the very persons humanitarian law has long sought to protect.[62] For this reason, too, the environment must be protected during wartime.[63] Now is the time to determine how best this should be done; the outbreak of the next major war will be too late.

Environmental modification as a means or method of warfare is an ancient practice, one for which the United States was severely criticized in Vietnam.[64] In the late 1970's and early 1980's a significant body of opinion concluded that militarily useful environmental modification

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[57]Sharp, *supra* note 26, at 4. The ratio of "battle intensity," measured in enemy casualties over the period World War II to Korea to Vietnam is 3:2:1, while the ratio of munitions expended during the same period is 1:5:7. The ratio of munitions expended per soldier was 1:6:18. "(H)igher munitions expenditures with no proportional increase in enemy casualties suggest that these munitions were used against larger and more ill-defined target areas, resulting in higher levels of environmental damage." Schafer, *supra* note 24, at 291.

[58]Sharp, *supra* note 26, at 65.

[59]*See, e.g.,* Caggiano, *supra* note 2, at 498. In total war, state survival may be more compelling than humanitarian restraint.

[60]*Id. at* 497-98.

[61]Diederich, *supra* note 10, at 137.

[62]*Id.* at 158.

[63]*Id.*

[64]Richard Carruthers, *International Controls on the Impact on the Environment of Wartime Operations,* 10 ENVTL. & PLAN. L.J. 38, 39-40 (1993); Westing, *supra* note 2, at 5.

was near-at-hand.[65] Environmental modification directed at outerspace and celestial bodies, the atmosphere, the lithosphere (landmasses), the hydrosphere (waterbodies), and biota (marine and terrestrial *flora* and *fauna*) was theorized.[66]

Atmospheric manipulation might include cloud seeding to induce torrential rains and stratospheric ozone destruction for the purpose of admitting damaging levels of solar radiation over a large region.[67] Lithospheric manipulation might include awakening quiescent volcanoes and the instigation of earthquakes.[68] Hydrospheric manipulation might include toxic contamination of waterbodies and the creation of tidal waves.[69]

However malevolent environmental modification has been in the past, overall it has been militarily ineffectual, even in Vietnam and the Gulf War.[70] Fear of the consequences of hostile environmental modification motivated adoption in 1977 of a treaty, the ENMOD Treaty, to prevent hostile uses of natural forces.[71]

C. *Protection of the Environment*

1. Protection of the Environmental is an Issue of Human Survival.

> *When the natural environment is damaged and contaminated to the extent that it threatens life, health, food, shelter and minimum work standards, it also becomes a threat to established human rights.*[72]

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[65]Westing, *supra* note 2, at 1 ("Only now are we perhaps on the threshold of developing the more sophisticated technical ability to control atmospheric, tectonic and biotic factors of the environment for effective hostile military purposes.").
[66]*Id.* at 3.
[67]Ernö Mészáros, *Techniques for Manipulating the Atmosphere, in* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL 16-22 (Arthur H. Westing ed., 1984).
[68]Westing, *supra* note 2, at 6.
[69]*Id.* at 7-8. *N.B.* Many of these lithospheric and hydrospheric effects are believed to be achievable through the deep detonation of nuclear devices. Hallan C. Altimier, *Techniques for Manipulating the Geosphere, in* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL 27 (Arthur H. Westing ed., 1984).
[70]Westing, *supra* note 2, at 1, 5.
[71]Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, May 18, 1977, 31 U.S.T. 33, T.I.A.S. No. 9614. The evolution of the law of war proceeded against a background of virtual environmental unconsciousness until some awareness was generated by critics of belligerent practices harmful to the environment during the latter stages of the Vietnam War. Falk, *supra* note 20, at 86.
[72]Downs, *supra* note 49, at 351.

Mankind is now recognized as the single greatest environmental threat to human survival.[73] In the coming century our biggest worry is whether we will destroy our planet and ourselves with it.[74] Our greatest challenge will be to contain our activity within the carrying capacity of the Earth.[75] Man's impact on nature has fused human rights and environmental rights irrevocably.[76]

The Right to a Safe Environment[77]

Man is a species endangered by himself.[78] In order to enjoy the right to life itself, mankind must have a "decent and safe" environment.[79] The landmark Stockholm Declaration, the product of the 1972 U.N. Conference on the Human Environment,[80] first introduced this juxtaposition of human and environmental rights: "Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits life of dignity and well-being."[81] The right to a safe or "healthy" environment has since been incorporated into

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[73]Gormley, *supra* note 23, at 91.

[74]Holmes Rolston III, *Rights and Responsibilities on the Home Planet,* 18 YALE J. INT'L L. 251 (1992).

[75]*Id.*

[76]Audrey Chapman, Symposium Overview: *Earth Rights and Responsibilities: Human Rights and Environmental Protection* (Apr. 3-5, 1992), 18 YALE J. INT'L L. 215 (1992); *and see* Dinah Shelton, *Human Rights, Environmental Rights, and the Right to Environment*, 28 STAN. J. INT'L L. 103, 109 (1991) ("(I)t is impossible to separate the interests of mankind from protection of the environment."). The high hurdle for the law pertaining to environmental protection during armed conflict, as it is for human rights law, is the barrier of state sovereignty. Almond, *supra* note 43, at 315.

[77]"(A)ll individuals are entitled to live in an environment adequate for their health and well-being . . . ." U.N. General Assembly Resolution 45/14 (Dec. 14, 1990), *reprinted in* Schwartz, *supra* note 4, at 9.

[78]Gormley, *supra* note 23, at 86.

[79]*Id.* at 85, 111-12. Part of the debate in this area centers on whether the right to a safe environment is a human right or an environmental right. Perhaps the better view is that it is a hybrid, a right that acknowledges the inseparability of humankind and the environment. *See* Downs, *supra* note 49, at 377; McClymonds, *supra* note 4, at 592. *And see especially* Shelton, *supra* note 76, at 104-105, 110. "In reality, the apparent conflict between human utility and intrinsic value of the environment does not exist because it is impossible to separate the interests of mankind from protection of the environment. *Id.* at 109.

[80]Stockholm Declaration on the Human Environment, U.N. CONFERENCE ON THE HUMAN ENVIRONMENT (Stockholm, 1972), U.N. Doc. A/C.48/14, and Corr. 1 (1972).

[81]Excerpt from Stockholm Declaration, Principle 1, *reprinted in* Schwartz, *supra* note 4, at 10. Principle 1 derived from an American proposal to the effect: "Every human being has a right to a healthful and safe environment, including air, water, and earth, and to food and other material necessities, all of which should be sufficiently free from contamination and other elements which detract from the health or well-being of man." U.N. Doc. A/Conf. 48/PC/WG.1/CRP.4 at 65 (1971), *reprinted in* Louis B. Sohn, *The New International Law: Protection of the Rights of Individuals Rather than States*, 32 AM. U.L. REV. 1, 60 (1982). Article 25 of the

a number of international, regional, and national instruments, both as "hard" and "soft" law.[82] Despite the rapid growth of this concept it remains controversial, one better characterized as an emerging right than a customarily accepted one.[83]

The right to a safe environment has an individual and a collective component.[84] It springs from the concept of communal resources, an ancient doctrine of Roman and early English law that largely disappeared in the 19th Century with the full flowering of the Lockean concept of labor capital.[85] In some measure a response to the "tragedy of the commons,"[86] the safe environment right rejects the assignment of legal rights in the resources of the global commons on the basis of exploitation.[87] A healthy and safe environment is thus one which can sustain development without over-consumption of the dwindling supply of natural resources.[88]

Universal Declaration of Human rights contains an "adequate" environment right. Universal Declaration, *infra* note 91, art. 25.

[82]Michelle L. Schwartz, *International Legal Protection for Victims of Environmental Abuse*, 18 YALE J. INT'L L. 355, 373 (1992). Conventions incorporating a right to a safe environment include the African Charter on Human and Peoples Rights (O.A.U., 1981), the Additional Protocol to the American Convention on Human Rights in the Area of Economic, Social, and Cultural Rights (O.A.S., 1988), the Convention on the Rights of the Child (U.N., 1989), the Convention Concerning Indigenous and Tribal Peoples in Independent Countries (I.L.O., 1989), and the Economic Commission for Europe Charter on Environmental Rights and Obligations (U.N., 1990). *See* Shelton, *supra* note 76, at 103, 125-27. The 1986 "Brundtland Principles," the product of the World Commission on Environment and Development, also provide: "All human beings have the fundamental right to an environment adequate for their health and well-being." Brundtland Principles art. 1, *reprinted in* McClymonds, *supra* note 4, at 596. The new American Convention for the Protection of Human Rights and Fundamental Freedoms also recognizes a right to a safe environment, but it has not yet entered into force. *Id.* at 599. Section 101(c) of the venerable National Environmental Policy Act (NEPA) also recognizes the right to a safe environment. 42 U.S.C. § 4331(c). *See also* Schwartz, *supra* note 4, at 11-12 (39 countries recognize similar rights in their constitutions). "Hard" law is that which is binding on states; "soft" law is not, although it may carry great moral or political weight.

[83]McClymonds, *supra* note 4, at 600.

[84]Downs, *supra* note 49, at 366 (quoting Professor Louis Sohn: "(B)ecause collective rights are always ultimately destined for individuals, they are *ipso facto* . . . individual rights.").

[85]John A. Chiappinelli, Comment, *The Right to a Clean and Safe Environment: A Case for a Constitutional Amendment Recognizing Public Rights in Common Resources*, 40 BUFF. L. REV. 567, 570-79 (1992). The question is not of property, but of community. Rolston, *supra* note 74, at 252.

[86]The "tragedy of the commons" is the result of the over-consumption of common resources by large users at the expense of others, an unrestrained competition to maximize exploitation without internalization of the costs of doing so. Chiappinelli, *supra* note 85, at 579 n.61 (citing Garrett Harden, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968)).

[87]Chiappinelli, *supra* note 85, at 579-85.

[88]*Id.* at 584, 594, 603. As noted above, the exploitation (consumption) of resources for military purposes is enormous, measured both in terms of construction of war machines and in terms of environmental damage and destruction. *See supra* note 47 and accompanying text.

Principles enshrined in the Stockholm and Rio[89] Declarations, the World Charter for Nature[90] and the Universal Declaration of Human Rights[91] undergird the right to a safe environment, in effect a right of human survival, which Professor Gormley contends has been accepted as peremptory norm of international law.[92] States, then, have a duty *erga omnes* to protect the entire international community from infringements of the safe environment right such as transboundary pollution.[93] For example, Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration reiterate the doctrine of state responsibility, to wit, states are responsible to "ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of their national jurisdiction."[94]

The right to safe environment does not yet protect the environment during armed conflict, but as an emerging right, it soon may. The difficulty lies in its ambiguity. What is a safe or healthy environment, or, as the Stockholm Declaration phrased it, one adequate for a life of dignity and well-being?

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[89]Rio Declaration on Environment and Development, U.N. CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (Rio de Janeiro, 1992), U.N. Doc. A/CONF. 151/5/Rev. 1 (1992).

[90]United Nations World Charter for Nature, U.N. GAOR Supp. No. 51 at 17, U.N. Doc. A/37/51 (1982).

[91]Universal Declaration of Human Rights, U.N. GAOR 3d Sess. (I), U.N. Doc. A/180, at 71 (1948).

[92]Gormley, *supra* note 23, at 93. Indeed, Professor Gormley argues that "severe instances of life-threatening destruction can be included within the orbit of *jus cogens*." *Id.* at 96. An obvious advantage of *jus cogens* status is universal jurisdiction which greatly expands the *fora* available for prosecution of delictions. *See* Henkin, *supra* note 24, at 1081-86. The existence and importance of a right to a safe environment, however, should not depend on some "graduated normativity" or "supernormativity," but rather it should be recognized that all accepted norms of international law create binding obligations. Prosper Weil, *Towards Relative Normativity in International Law*, 77 AM. J. INT'L L. 413, 421, 428-29 (1983).

[93]Gormley, *supra* note 23, at 93, 97. The 1975 Helsinki Final Act of the Conference on Security and Cooperation in Europe declares that states should ensure that the activities carried out on their territories do not degrade the environment in another state. Schwartz, *supra* note 4, at 11. *And see* Downs, *supra* note 49, at 353. The International Court of Justice did not include environmental rights or responsibilities in its enunciation of *erga omnes* duties in the *Barcelona Traction Case*. *See* Leslie C. Green, State Responsibility and Civil Reparation for Environmental Damage 9-10 (Undated) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI).

[94]Principle 1 of the Rio Declaration admits that humans ". . . are entitled to a healthy and productive life in harmony with nature." Rio Declaration, *supra* note 89. Professor Gormley contends, citing his own work, that the Stockholm Declaration represents customary international law. Gormley, *supra* note 23, at 98.

The terms "safe," "healthy," and "adequate" are not in themselves precise.[95] Further, we may expect that their meaning will change over time, a reflection of the dynamic nature of rights.[96] These are not fatal flaws, however. The well known terms "due process" and "self-determination," for instance, are equally vague and conceptually abstract.[97] It is from judicial gloss and common usage that terms of art gain recognizable and accepted meaning.[98]

Intergenerational Equity

> *The natural resources of the earth, including the air, water, land, flora, and fauna and especially representative examples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.*[99]

The corollary of the right to a safe environment is intergenerational equity.[100] The intergenerational equity theory posits that humans have a duty to preserve for their descendants a healthy environment capable of sustaining life.[101] Principle 3 of the Rio Declaration declares: "The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present *and* future generations [emphasis added]."[102] Many intergenerationalists likewise support the view that the right of human survival, i.e., the right to a

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[95]"(T)he term 'environment' is neutral in itself, implying no measure of environmental quality." Shelton, *supra* note 76, at 134.

[96]*Id.* at 136-37.

[97]*Id.* at 135 ("Public consciousness can take abstract terms in law and give them meaning in a concrete social and historical context, rendering them sufficiently precise to allow judicial decisions.").

[98]James W. Nickel, *The Human Right to a Safe Environment: Philosophical Perspectives on Its Scope and Justification*, 18 YALE J. INT'L L. 281, 285 (1992).

[99]Stockholm Declaration, *supra* note 80, Principle 2.

[100]Intergenerational equity is conservation of the environment and natural resources for the benefit of future generations. McClymonds, *supra* note 4, at 611-13. It is comprised of three aspects: conservation of diversity in natural and cultural resources; maintenance of environmental quality; and, equal access to resources by current and future generations. Harvard Law Review, *Developments in the Law: International Environmental Law*, 104 HARV. L. REV. 1484, 1540-41 (1991).

[101]Schwartz, *supra* note 4, at 5 n.15. *And see* U.N. General Assembly Resolution 45/94 (Dec. 12, 1994) (". . . all individuals are entitled to live in an environment adequate for their health and well-being . . . ."). *See also* The Charter on Environmental Rights and Obligations (Oct. 31, 1990), *cited in* Schwartz, *supra* note 4, at 11. NEPA also recognizes intergenerational equity. 42 U.S.C. § 4331(a).

[102]Rio Declaration, *supra* note 89. It is, of course, impossible to predict how future generations will value particular resources. Oil, a commodity that figured so prominently in World War II and the Gulf War, may be of little or no use by the middle of next century. *See* Harvard Law Review, *supra* note 100, at 1540-43.

safe environment, is a nonderogable human right which imposes on states an affirmative duty to "prevent activities under their jurisdiction or control from producing life-threatening environmental catastrophe."[103]

The safe environment and intergenerational equity theories view the environment as comprised of ecosystems.[104] Damage to ecosystems from catastrophic incidents, habitat modification, and long-term media contamination, has created "environmental refugees," persons displaced from environments no longer able to sustain them.[105] Though the right to a healthy environment now and in the future is "ill-defined and controversial,"[106] its recognition would serve a beneficial purpose. Recognition of rights alone is not sufficient to ensure their enjoyment; effective enforcement is indispensable.

2. Protection of the Environment Needs a Legal Status Commensurate with its Importance.

A right to a safe environment is important because the development of such a right "would place environmental protection on an equal level with other human rights for balancing purposes, rather than subordinating it to human rights, such as the right to property."[107] Current protections for the environment during armed conflict derive from customary law of armed conflict and property-based protections under humanitarian law.[108] The scheme for protection of

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[103]Schwartz, *supra* note 4, at 6. The criminalization of aggressive war is also related to intergenerational equity, being "fundamentally designed to protect the welfare of future generations of mankind." Leibler, *supra* note 6, at 94-95.

[104]Schwartz, *supra* note 4, at 6.

[105]*Id.* at 4. Refugees are also a significant wartime concern and thus figure prominently in Geneva humanitarian law protections. Article 55 of Protocol I relates to protection of the civilian population. *See infra* part V.B.2.

[106]Schwartz, *supra* note 4, at 9. While it may be difficult to reach consensus on specific standards for protection of the environment and natural resources, this should not be confused with the need to define and protect a fundamental right to a safe environment, one that ameliorates the condition of the environment during armed conflict. *See* Downs, *supra* note 49, at 376. Further, intergenerational equity and the right to a safe environment conflict with two powerful counter-forces: the right to sustainable development and state sovereignty. *Id.* at 382-83; *and see* McClymonds, *supra* note 4, at 584.

[107]Shelton, *supra* note 76, at 111.

[108]*See infra* part V.B. *and see also* Roach, *supra* note 13. The environment is not property, thus compensation paid to a farmer for damage to farm buildings, crops, and livestock as the result of an unlawful scorched earth campaign by a hostile force neglects other environmental damages such as endangerment of species through loss of habitat, respiratory disease suffered by neutrals in an adjacent country from inhalation of toxic substances, and

the environment during armed conflict must go beyond mere incidental protection; it must incorporate international environmental law.[109] After all, the purpose of environmental law is to sustain life globally, and not merely in peacetime.[110]

The issue is not altogether unlike the debate over whether the U.S. Constitution needed a Bill of Rights. The adoption of the Bill of Rights acknowledged the importance of special protections for fundamental rights, as it may be said that the several human rights conventions acknowledge the importance of these fundamental rights under international law. The worldwide growth of environmental law is evidence that the environment has now attained a level of importance that warrants special legal protections.

A comprehensive new treaty may not be a necessary vehicle for the law pertaining to environmental protection during armed conflict, but entrusting basic necessities of life to incidental legal protections is short-sighted. The possible adverse consequences of unrestrained population growth and environmental degradation outside armed conflict are themselves sufficient reasons for recognition of a right to a safe environment and the corresponding duties associated with intergenerational equity. While there is room for optimism born of the successes achieved over the last two decades of conservation and environmental protection, the world community must anticipate that, for the foreseeable future, environmental pressures will increase not abate, and that armed conflict will only exacerbate them.

Without an underpinning of fundamental rights environmental protection during armed conflict will continue to be eclipsed by antithetical forces.[111] International law is least powerful

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eutrophication of debris-choked waterbodies which could result from the same occurrence. *See* Baker, *supra* note 10, at 373. *See also* Okordudu-Fubara, *supra* note 2, at 204-205 ("The environment *stricto sensu* is not treated as property in the traditional legal sense. However, under the emerging international law of environmental protection, a state is deemed to have a protectable interest in the environment circumscribing its sovereign territory.").

[109]The approach to environmental protection must be integrative, a reflection of ecological interdependence. Shelton, *supra* note 76, at 110. "[The] 'dictates of public conscience' [in the Martens Clause] and principles of law increasingly recognize that the environment should be protected in its own right." Baker, *supra* note 10, at 351-52. *And see infra* part V.A.2.

[110]Shelton, *supra* note 76, at 111.

[111]Customary norms are susceptible to "extreme subjectivity and selectivity". Falk, *supra* note 20, at 86 ("(T)he

when it neglects rights in favor of rules; rules of compulsion or prohibition weaken when they lack normative consensus. Correspondingly, problems of enforcement are exacerbated by this dichotomy. The law must enunciate what values it seeks to preserve and protect *before* it can provide credible remedies.

D. *The Significance of Conventional Law*

1. A Multilateral Framework Convention is Ultimately the Best Protection.

Environmental protection, in general, and during armed conflict, in particular, is a matter not only of sovereign rights and state responsibility, but also of individual rights and responsibilities. Because of the breadth and depth of environmental protection issues and their typically scientific and technical nature,[112] environmental protection is not readily served by the necessarily general rules of customary international law.[113] Furthermore, not only has international environmental law developed largely through treaties and conventions,[114] the trend in the closely-related field of human rights is to conventions under the auspices of the U.N. or regional organizations.[115]

Protection of the environment needs to be grounded in cognizable rights, preferably rights that are treaty-based.[116] Despite the wide acceptance that the Stockholm Declaration has

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history of modern warfare shows the subordination, if not abandonment, of these customary principles in time of war, with postwar assessments of 'illegality' confined generally to the practices of the losing side.").

[112] *See* Harvard Law Review, *supra* note 100, at 1529.

[113] "(C)ustomary law lacks the specificity required to fully protect the natural environment." Simonds, *supra* note 8, at 168. Consider also the following: "Environmental protection negotiations under hostile circumstances would seem unlikely, which is another reason for establishing prospective rules in the law of war." Diederich, *supra* note 10, at 137 n.3. Of course, combat hinders environmental assessments and response actions, too. Okordudu-Fubara, *supra* note 2, at 134, 139.

[114] Indeed, a complicating factor and an argument in favor of a single, comprehensive convention is the plethora of authorities bearing to varying degrees on environmental protection during armed conflict. Gupta, *supra* note 9, at 271. *See also* James E. Hickey, Jr. & Vern R. Walker, *Refining the Precautionary Principle in International Environmental Law*, 14 VA. ENVTL. L.J. 423, 424 (1995).

[115] *See generally* THOMAS BUERGENTHAL, INTERNATIONAL HUMAN RIGHTS 21 *et seq.* (2d ed. 1995). Treaty law is strongest when linked to prior customary law.

[116] McClymonds, *supra* note 4, at 592. "(A)mbiguous language and other limitations demonstrate the need for a comprehensive convention specifically dealing with environmental damage in times of war." Gupta, *supra* note 9, at 251.

garnered over the years, the right to a safe environment is said not to have entered into customary international law.[117] Neither, it is said, is it yet a general principle of international law.[118] Indeed, the "equivocation" of the 1992 Rio Declaration on the subject of a right to a safe environment - in favor of the right to sustainable development - undercuts rather than enhances the safe environment concept.[119]

One advantage of conventional law over customary law is that the obligations of a treaty and the date that a state becomes bound by them, can be fairly accurately determined.[120] Whether a state is bound by customary rules, and if so from what moment, is more difficult to ascertain.[121] Another advantage to conventional law is that it prevents a "dangerous . . . *de facto* oligarchy" of "the most powerful states" from imposing its will on the majority of states.[122]

A secondary benefit of a comprehensive treaty that would apply during armed conflict is that it would alleviate ambiguity concerning suspension of laws and treaties applicable in peacetime. Many domestic environmental statutes, the Comprehensive Environmental Response, Compensation, and Liability Act, for example, may be waived in wartime.[123] Treaty applicability in wartime depends on the "intrinsic character" of the provisions in question.[124]

Environmental protection is not necessarily incompatible with armed conflict. "Two nations can be at war, and still follow norms that protect the environment."[125] "As between belligerents and third parties, the rule is established: the law of peace is not suspended in time of war. But between belligerents, the application of peacetime treaties is unclear."[126] A

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[117]McClymonds, *supra* note 4, at 597.
[118]*Id.* at 599.
[119]*Id.* at 598. Has Stockholm's "optimism" given way to Rio's "cynicism"? *See* Brunneé, *supra* note 17, at 1744.
[120]Weil, *supra* note 92, at 433.
[121]*Id.*
[122]*Id.* at 441. The law "they" want is the law the others get.
[123]CERCLA § 107, 42 U.S.C. § 9607. The exemption applies during actual combat only. United States *v.* Shell Oil Co., 841 F.Supp. 962 (C.D. Cal. 1992).
[124]Sharp, *supra* note 26, at 23.
[125]*Id.* at 24.
[126]Simonds, *supra* note 8, at 188. Even though international environmental law is a specialized regime similar in that regard to the law of armed conflict, it remains unclear to what extent, if any, it would be suspended during hostilities. *Id.* at 189. Suspending environmental law during armed conflict without violating the rights of neutral

comprehensive treaty, *if widely ratified*, could make the applicability of environmental protections more definite and certain.

Ratified international agreements are also the best method for protecting human rights, many of which are intimately related to the law of armed conflict and to environmental law.[127] United Nations treaties have been crucial to both the legitimacy and enforceability of international human rights.[128] The practical benefits of broad recognition and widespread acceptance gained under the United Nations has been of immeasurable benefit to the development of a large body of humanitarian law since World War II.[129] Because of the close connection of human rights and environmental rights, a similar approach might be used for environmental protection during armed conflict.

A multilateral convention would place environmental protection where it belongs, on the same plain as fundamental human rights.[130] Such a convention could strike a balance between competing human rights and environmental rights for the benefit of current and future generations.[131] Specific prohibitions in treaty form are also important because "ad hoc considerations of military necessity have been allowed to prevail in the absence of specified prohibitions on weapons or targets."[132] This "primacy of military necessity" which grew out of a long-standing "disregard of environmentally disruptive effects" needs self-conscious restraints, restraints that existing customary international law does not now provide.[133]

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states would be problematic. *Id.* at 190.

[127] *See* Downs, *supra* note 49, at 355.

[128] *Id.*

[129] *Id.* at 357.

[130] *Id.* at 378-80.

[131] Shelton, *supra* note 76, at 111-12.

[132] Falk, *supra* note 20, at 83.

[133] *See* Falk, *supra* note 41, at 37. "The law of war, being closely related to the dominant preoccupation of leaders of states with sovereign prerogatives in matters of security and survival, has been plagued to a greater extent than any other area of international law with a reluctance to confine governmental discretion within bounds." Falk, *supra* note 20, at 80.

2. The Convention-Protocol Process Provides a Practical Solution for Resolving Difficult Issues.

International environmental law has attempted to deal with some of its thorniest issues, ozone depletion and protection of global commons such as Antarctica, for example, through the convention-protocol process.[134] This approach begins with broad conceptual agreement and works toward greater specificity over time as states' interests coalesce into consensus on workable solutions.[135] While even the Vienna-Montreal ozone accords took some eight years to come into effect, this relatively lengthy process is still faster than the time that one would expect it to take for a norm of customary international law to develop and enter into effect.[136]

The two elements, the framework convention and the implementing protocol, go hand-in-hand. The one will not work without the other. The generality required to gain assent to the framework convention disserves the interests of enforcement.[137] Conversely, it is not always possible to reach immediate agreement on complex technical aspects of implementation; neither science nor technology may then be capable of resolving the issues in dispute or of providing the kind of solid understanding of relevant environmental consequences that will bring states to identify their national interests with implementation.

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[134]The Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances That Deplete the Ozone Layer, for one; the Antarctic Treaty and the Protocol on Environmental Protection to the Antarctic Treaty, for another. Protection of the global commons may be the beginning of a trend toward global community and global order and security predicated on interdependence (vice sovereign independence). Almond, *supra* note 43, at 314-15. "Preservation of the environment is a shared responsibility of all our nations. *Id.* at 317 (quoting the Charter of Paris). The focus is an international one divorced from territorially-based considerations, one that looks at the "actual environmental impact of state activity" and its derivative impact on "the vital ecological interests of the community of states." Brunneé, *supra* note 17, at 1745. *See also* Gupta, *supra* note 9, at 273. The Antarctic Treaty is a good example of a preventative approach that should be used with environmental protection during armed conflict. Simonds, *supra* note 8, at 214. *And see infra* part IV.B.2.

[135]*See* Harvard Law Review, *supra* note 100, at 1555-69.

[136]*Id.* at 1544. If one considers that the law of environmental protection in armed conflict is a creature of the Gulf War, then it is only five years old. When one considers the possibility that this body of law is not as well developed as some argue, then one must acknowledge that it cannot be predicted with any certainty how long it will take for the law to become settled.

[137]*Id.* at 1551.

E. *A Fifth Geneva Convention*

In the wake of the Gulf War, dissatisfaction with the state of environmental protection during armed conflict led to a clamor for new protections. Addressing the criticism that the law of armed conflict provides only incidental protection to the environment, the United Nations, the International Committee of the Red Cross ("ICRC"), Greenpeace International ("Greenpeace"), and others examined the need for a new, comprehensive convention focused specifically on the perceived deficiencies of existing law.[138] At a conference in London in June 1991 sponsored by Greenpeace and hosted by the London School of Economics,[139] a proposed new convention, styled as a "Fifth Geneva Convention," was debated.[140] The proposal drafted by Professor Glen Plant has not generated significant support.[141]

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[138]Carruthers, *supra* note 64, at 50; Baker, *supra* note 10, at 373. The ICRC took up consideration of the matter at its Twenty-sixth International Conference in late 1991. Hans-Peter Gasser, *For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 AM. J. INTL L. 637, 640 (1995). The ICRC submitted its recommendations to the U.N. in 1992, leading to U.N. General Assembly Resolution 47/37 of November 1992. *Id.* Resolution 47/37 calls upon member states to ratify Protocol 1 and the ENMOD Treaty. *Id.* The ICRC conducted a second meeting of "experts" in April 1993 this time leading to U.N. General Assembly Resolution 48/30. *Id.* Resolution 48/30 invites member states to incorporate into their military manuals the environmental protection "guidelines" recommended by the ICRC. *Id.* at 640-41. The resolution does not approve the guidelines but makes the item part of the U.N.'s agenda for its Decade of International Law. *Id.* at 640. The ICRC's "Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict" are contained in the appendix to Dr. Gasser's article. *Id.* at 641-43. *And see infra* part III.B.1.

[139]London Round Table Conference on A Fifth Geneva Convention on the Protection of the Environment in Time of Armed Conflict, June 3, 1991, organized by the London School of Economics, Greenpeace International, and the Centre for Defence Studies. A second conference entitled "Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare was convened by the Canadian Ministry of External Affairs in July 1991. Gasser, *supra* note 138, at 639. A third conference of "experts," this time convened by the International Council on Environmental Law, occurred in Munich, Germany in December 1991. *Id.*

[140]The proposal, entitled "Elements of a New Convention on the Protection of the Environment in Time of Armed Conflict (Second Revision)," endeavors to make "clear statements on the relevant rules of customary law concerning, *inter alia*, state and personal criminal responsibility." Glen Plant, *Government Proposals and Future Prospects, in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR 183 (Glen Plant ed., 1992). "Environment" is not defined. *Id.* at 188. The proposal follows the basic approach of revisions to Geneva law and Hague law vice wholesale redrafting. *Id.* at 186.

[141]Gasser, *supra* note 138, at 639. The proposal would apply to all armed conflict, international and non-international, and subordinate military necessity to protection of the environment. Plant, *supra* note 140, at 183-207. Borrowing the ENMOD Treaty standard of "widespread, long-lasting or severe," the proposed convention would create an "Organization" with remedial powers. *Id.* Among other prohibitions the proposed convention would outlaw defoliation for purposes of construction of military infrastructure and would also outlaw any attacks on forests even when used by an enemy force for cover or concealment. *Id.*

The Greenpeace initiative is criticized for its failure to accommodate legitimate self-defense interests.[142] Self-defense is a matter of national survival and thus a matter of state prerogative that even the most progressive and law-abiding governments will continue to guard jealously.[143] A second criticism is that the Greenpeace initiative would undermine the existing Geneva conventions by attaching to that body of law a contentious appendage that does not enjoy the near universal acceptance and support given by the international community to the four major humanitarian conventions.[144]

As one participant at the London Conference phrased it:

> Lawyers and those concerned with the law often respond to what is seen as a new problem by wanting to invent or create new laws. This is not, however, always the best possible course to take.[145]

While in fact little "new" law may be needed,[146] one lesson to be learned from the London Conference[147] is that the coherence, acceptance, compulsion, and effectiveness of existing law might be better served through an effort, largely of codification, to achieve a comprehensive convention.[148]

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[142]Sharp, *supra* note 26, at 57. Marine Major Sharp curtly dismissed the Greenpeace initiative, remarking "To believe that another piece of paper that restates the existing law would prevent any further intentional environmental damage - such as the damage suffered in Kuwait - is naive, if not absurd." *Id.* at 58. No murder statute prevents homicides any more than a human rights treaty prevents "disappearances" and other abuses. It is not the legal document itself that is significant, but rather the ordered process that it creates that can have ameliorative effect.

[143]Falk, *supra* note 20, at 81; *see also* Wilcox, *supra* note 25, at 301.

[144]Plant, *supra* note 140, at 205.

[145]Adam Roberts, *An International Relations Expert's Overview, in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR 151 (Glen Plant ed., 1992). *And see* American Society of International Law, *supra* note 24, at 224 (remarks of Captain Geoffrey Greiveldinger) ("(T)he adoption of any single document is not going to be the definitive exposition of what international law is.").

[146]"(O)ne of the conclusions of the London Round Table conference, sponsored by Greenpeace, was that 'the rules of [humanitarian law] currently in force could substantially limit environmental damage, providing they are correctly complied with and fully respected." Sharp, *supra* note 26, at 58-59. *Cf.* "That international legal provisions bearing on the protection of the environment during time of war could and should be substantially improved, is clearly documented . . . ." Gunter Handl, *A Fifth Geneva Convention on the Protection of the Environment in Time of Armed Conflict,* 42 INTL & COMP. L.Q. 976 (1993) (reviewing GLEN PLANT, ENVIRONMENTAL PROTECTION AND THE LAW OF WAR (1992)). *See also* Leibler, *supra* note 6, at 133-34.

[147]Handl, *supra* note 146, at 977 ("(E)vents since the London Conference have amply confirmed the precarious nature of assumptions about the emergence of a new and more effective world order in which states might be able and willing to tackle legislatively the protection of the environment in times of war.").

[148]One suggestion is that a new convention should supplement, not replace, Protocol I and the ENMOD Treaty.

Continuing, this participant observed:

> On the question of a new convention for the environment, one central point must be clear: environmental issues are classic issues of the types that need to be addressed by the law of war. The law of war has traditionally, since at least 1879, addressed weapons and methods of warfare which have *long-lasting* effects, even after the war itself is over. Hence, for example, the prohibition on such mines at sea as cannot be prevented from destroying ships long after the immediate conflict is over. The law of war has always addressed methods of warfare which have *widespread* effects, for example, effects on neutral countries [emphasis added].[149]

Still, no matter how logical or compelling the new treaty approach may be, the task of obtaining agreement even to mere codification of international law can be long, tortuous, and ultimately unsuccessful.[150]

Part III
Are We Likely To Achieve Such A Convention In The Foreseeable Future?

In this part we will look at the predominating view in international law that existing law adequately protects the environment during armed conflict. We will see that the United Nations, the United States, and the ICRC, as well as many academics, agree that no new convention is needed. We will observe how environmental protection may be achieved through incorporation of environmental protection guidelines into military manuals and training. Concluding that ambiguity and omissions make existing law make an unsound permanent foundation for environmental protection during armed conflict, we will explore whether the guidelines approach serves the needs of enforcement.

Okordudu-Fubara, *supra* note 2, at 219. Further, it should be self-executing. Gupta, *supra* note 9, at 272. A "modest" agreement that would "garner wide support" would be better than a more comprehensive treaty that might have no "practical value" because of a lack of adherence. Simonds, *supra* note 8, at 220.

[149]Roberts, *supra* note 145, at 153.

[150]States may share common interests in environmental protection but may still be unable to hammer-out a comprehensive protective scheme. *See* Almond, *supra* note 34, at 178.

A. *The Prevailing View - Existing Law Adequately Protects the Environment During Armed Conflict*

1. No "Major Players" Support A New Convention.

Whatever the merits of a Fifth Geneva Convention might be, the weight of opinion in the international community favors strengthening existing protections under the law of armed conflict.[151] Neither the United Nations, nor the ICRC, nor the United States[152] or any other leading power support a new convention. Even the ICRC called the proposal for a Fifth Geneva Convention "radical."[153]

Building on the work of three post-Gulf War conferences of experts,[154] the ICRC conducted three meetings of experts of its own[155] which resulted in the formulation of "Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict."[156] Calling its guidelines a "resume" but not a "codification," the ICRC recommended them for "widest dissemination" and "scrupulous respect."[157] In 1994, the U.N. General Assembly, without formally approving the guidelines, recommended that all states give due consideration to incorporating the guidelines into their military manuals.[158]

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[151]"Any attempt to proscribe environmental damage in terms of a fixed level of damage that cannot be exceeded would be impractical and would fail." Sharp, *supra* note 26, at 32. "The military commander must be given the discretion to weigh the military necessity of an act with its corresponding environmental damage." *Id.*

[152]The position of the United States on altering the existing legal regime is "reluctance." Simonds, *supra* note 8, at 166.

[153]Gasser, *supra* note 138, at 639. In remarks delivered to the American Society of International Law in September 1995, ICRC senior legal advisor Hans-Peter Gasser cited excessive cost and risk of failure as the primary reasons why pursuing a new convention was not advisable. Dr. Gasser opined that failure to achieve a new convention might actually have a negative impact on the law, that is, that a new Geneva-style convention may, because of the controversy surrounding it, undermine the other Geneva Conventions and thereby erode rather than expand universal support for and adherence to humanitarian law relative to armed conflict. Hans-Peter Gasser, Remarks at the Meeting of the American Society of International Law (Sept. 26, 1995). One might also hypothesize that the ICRC opposes a new convention because it does not want to be burdened with the responsibilities of a monitoring agency (including costs) in derogation of its existing humanitarian functions. At least one commentator recommended that the proposed "Green Cross" function be assumed by the Red Cross. Diederich, *supra* note 10, at 159-60.

[154]Baker, *supra* note 10, at 352 n.5; *and see supra* note 138.

[155]*See* Morris, *supra* note 5, at 779-80.

[156]Gasser, *supra* note 138, at 640. The full text of the guidelines is set out *in id.* at 641-44.

[157]*Id.* at 641.

[158]*Id.*; Roach, *supra* note 13, at 3. This is an educational approach. Diederich, *supra* note 10, at 157.

Two by-products of this four-year long discourse, loosely under U.N. purview, are the San Remo Manual on International Law Applicable to Armed Conflicts at Sea[159] and the joint U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard manual, *The Commander's Handbook on the Law of Naval Operations.*[160] The guidelines approach is clearly the way the law of armed conflict is developing.[161] The call for a new convention has fallen silent.[162]

2. The Academics Agree.

In September 1995, a symposium entitled "The Protection of the Environment During Armed Conflict and other Military Operations" was conducted by the United States Under Secretary of Defense at the U.S. Naval War College in Newport, Rhode Island.[163] The symposium, which brought together military and academic experts from the U.S. and abroad, reached the same consensus as the ICRC, that is, "that the existing legal regime adequately protects the environment during international armed conflict," and also that the existing law adequately addresses military operations other than war.[164]

Echoing the ICRC, which participated in the symposium, the consensus of the symposium was that a new convention was "neither necessary nor desirable, at least in the near term," that an ambiguous convention may do more harm than good, and that there were no good prospects for achieving "widespread acceptance of a new agreement."[165] The symposium likewise took the

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[159]The San Remo Manual "articulates the considered views of a group of international lawyers and naval experts on the law of war providing protection to the environment in time of armed conflict at sea". Roach, *supra* note 13, at 6. The Manual provides that "(m)ethods and means of warfare should be employed *with due regard* for the natural environment taking into account the relevant rules of international law. Damage to or destruction of the natural environment *not justified by military necessity and carried out wantonly* is prohibited [emphasis added]." *Id.* at 6-7.

[160]Roach, *supra* note 13, at 7.

[161]*See, e.g.*, Baker, *supra* note 10, at 382-83 ("In seeking to protect the environment in its own right, the temptation is strong to identify new or specialized protections, but the wiser course is to pursue broader acceptance and more vigorous enforcement of existing rules.").

[162]The "legislative moment" has passed. *See* Falk, *supra* note 20, at 81.

[163]Roach, *supra* note 13, at 9.

[164]*Id.*

[165]*Id.*

view that "more effective and efficient enforcement of the existing laws is needed."[166] The balance of opinion favored education and training over punishment as the better means of seeking compliance.[167]

Of course, not everyone agrees. A number of legal scholars still believe that the existing law is inadequate to protect the environment during armed conflict.[168]

B. ***The Indoctrination Alternative***

1. The Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict.

The ICRC guidelines approach - peacetime indoctrination of armed forces - is eminently sensible. It instills an environmental ethic during peacetime that should carry-over into armed conflict. The approach, however, is not without its shortcomings. Manuals are not treaties; they are unilateral, not reciprocal. How states will choose, incorporate, and apply the guidelines are matters mostly of state discretion.[169] An even greater issue is what is a manual, that is, at what level of authority should the guidelines be incorporated?

An armed force communicates authoritative information by several means including orders and directives. Service-wide manuals, of which each of the U.S. Armed Forces has many, are another. Service manuals may contain law, policy, or some combination of the two.[170] In armed conflict, rules of engagement, which govern how and when force may be used, and operational plans and orders, which convey the conceptual plan and objectives for the operation, are two

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[166] *Id.*
[167] *Id.*
[168] *Id.* at 8; Simonds, *supra* note 8, at 166. Wil D. Verwey, Protection of the Environment in Times of Armed Conflict: Do We Need Additional Rules? 13 (Undated) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI) ("It seems that one cannot but come to the conclusion that protection of the environment in times of armed conflict is insufficiently assured by existing rules of international law.").
[169] Roach, *supra* note 13, at 3.
[170] *See, e.g.*, U.S. Dep't of the Navy, Chief of Naval Operations Instruction 5090.1B (Environmental and Natural Resources Program Manual Nov. 1, 1994) [hereinafter cited as Navy Environmental Manual].

other commonly used methods of transmitting guidance and direction. In short, there are a variety of vehicles that may be used to convey restraints on environmental damage during armed conflict. Which one is best?

The best place for environmental protections, if they are to have more than transitory effect during armed conflict, is in doctrine. Rules of engagement and operational orders certainly may be used to impose targeting limitations and other case-specific restraints, but these do not speak, as doctrine does, to the way the armed forces will fight. "Cookbook" environmental manuals which are usually focused on domestic compliance matters are also inappropriate. Doctrine belongs in doctrine publications whatever they may be called; it is a distinct body of military theory.

Doctrine, "(s)imply put, . . . affects how one fights, trains, exercises, and plans, and it organizes what one buys."[171] Doctrine, or more specifically military doctrine, is policy which is also intended to standardize behavior.[172] The primary attribute of military doctrine is that it comprises the fundamental principles, not specific procedures, that guide the employment of forces.[173] In the chaos of combat, doctrine affords a common framework; it is a "mode of harmonious thinking."[174]

Doctrine is not law, but environmental protection during armed conflict nonetheless belongs in doctrine. Environmental protection needs to be injected into the core of military thinking, not grafted onto an outer layer of quasi-legal, policy guidance. Environmental protection - affirmative obligations and express prohibitions - must permeate the planning and execution of military operations. So it matters, then, not just that environmental protection

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[171] James J. Tritten, *Naval Perspectives on Military Doctrine,* NAVAL WAR C. REV., Spring 1995, at 22, 31.
[172] *Id.* at 33.
[173] *Id.* at 35.
[174] *Id.* When doctrine incorporates environmental considerations, uncertainty over tactical options will be lessened. *See* William Wright IV, Naval Warfare and the Environment 5 (undated) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI). *Accord* Garrett, *supra* note 48, at 13-14.

guidelines are incorporated into military manuals, it matters which military manuals are used and how they are used.[175]

A coincidental benefit of military manuals is that they not only reflect *opinio juris*, they help to conform state practice, an important aspect of the law-making process.[176] Due to the notorious laxity of enforcement in international law, national implementation is critical to successful lawmaking.[177]

2. Military Doctrine of the United States.

U.S. war fighting doctrine does not provide expressly for environmental protection during armed conflict, but environmental considerations are beginning to take root in other sources of law and policy for military commanders. The most recent edition of *The Commander's Handbook on the Law of Naval Operations* applies environmental considerations to targeting:

> 8.1.3 Environmental considerations. It is not unlawful to cause collateral damage to the natural environment during an attack upon a legitimate military objective. However, the commander has an affirmative obligation to avoid unnecessary damage to the environment to the extent that it is practicable to do so consistent with mission accomplishment. To that end, as far as military requirements permit, methods or means of warfare should be employed with due regard to the protection and preservation of the natural environment. Destruction of the natural environment not necessitated by mission accomplishment and carried out wantonly is prohibited. Therefore, a commander should consider the environmental damage which will result from an attack on a legitimate objective as one of the factors during targeting analysis.[178]

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[175]Conversely, "the absence of a manual or the use of manuals whose content does not include the relevant norms would strongly suggest that these norms have not been adopted." W. Michael Reisman & William K. Leitzau, *Moving International Law From Theory to Practice: The Role of Military Manuals in Effectuating the Law of Armed Conflict, in* THE LAW OF NAVAL OPERATIONS 8 (U.S. Naval War College International Law Studies, Horace B. Robertson, Jr. ed., 1991).

[176]Frits Kalshoven, *A Comment to Chapter 11 of the Commander's Handbook on the Law of Naval Operations, in* THE LAW OF NAVAL OPERATIONS 300 (U.S. Naval War College International Law Studies, Horace B. Robertson, Jr. ed., 1991); Reisman & Leitzau, *supra* note 175, at 7-8 (norms formed by "homologous national action").

[177]Reisman & Leitzau, *supra* note 175, at 8.

[178]U.S. DEPT OF THE NAVY, U.S. MARINE CORPS & U.S. COAST GUARD, THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS ¶ 8.1.3 (Naval Warfare Publication No. 1-14M/Marine Corps Warfare Publication No. MCWP 5-2.1/Commandant Publication No. P5800.7: 8-2 1995). The prior iteration of this work, known as NWP-9, contained no similar provisions. *See* Kalshoven, *supra* note 176, at 309. Moreover, the annotated supplement to NWP-9 stated that the U.S. was not bound by Protocol I's prohibition on environmental reprisals. U.S. DEPT OF

This is believed to be the first policy statement in a military manual specifically requiring protection of the environment during armed conflict.[179] Doctrinal publications, such as the U.S. Navy's publication *Naval Warfare*, the work of the Naval Doctrine Command, do not address environmental protection in any but the most tangential way.[180] Further environmental protection guidance from the Chairman of the U.S. Joint Chiefs of Staff is anticipated.[181] Perhaps in formulating this guidance the Joint Chiefs might seek input from the several services' doctrine commands.

C. *An Impermanent Solution*

1. Ambiguities and Omissions in Existing Law Afford No Sturdy, Permanent Foundation for Environmental Protection.

There is substantial authority to the effect that intentional destruction of the environment which is not militarily necessary is unlawful.[182] But what does this really tell us? How might this

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THE NAVY, ANNOTATED SUPPLEMENT TO THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS ¶ 6-24 (Naval Warfare Publication No. 9 (Rev. A)/FMFM 1-10 1989) *And see* Simonds, *supra* note 8, at 209. A targeting vice weapons approach affords more flexibility in drawing distinctions between justified and unjustified environmental damage. Simonds, *supra* note 8, at 215.

[179]Roach, *supra* note 13, at 7. The Army's field manual on operations and the Air Force's pamphlet on armed conflict do not contain similar provisions. *See, e.g.*, U.S. DEPT OF THE ARMY, OPERATIONS (Army Field Manual No. 100-5 1993); U.S. DEPT OF THE AIR FORCE, INTERNATIONAL LAW - THE CONDUCT OF ARMED CONFLICT AND AIR OPERATIONS (Air Force Pamphlet No. 110-31 1976). The 1976 Air Force pamphlet, which predates Protocol I and the ENMOD Treaty, mentions the Fourth Geneva Convention, art. 53, but does not discuss its applicability to environmental protection, a role that many commentators assign to this important but environmentally-ambiguous provision. *Id.* at 14-4. The 1980 iteration describes Protocol I as a new provision not binding on the U.S. U.S. DEPT OF THE AIR FORCE, COMMANDER'S HANDBOOK ON THE LAW OF ARMED CONFLICT ¶ 6-2 (Air Force Pamphlet No. 110-34 1980). It would be appropriate to also keep in mind that targeting is only one aspect of the use of armed force; the universe of potential damage to the environment during armed conflict is much larger. It should be recalled that "(t)he legal regime did not, until very recently, even contemplate deliberate or vindictive environmental pollution . . . ." Leibler, *supra* note 6, at 69-70. Professor Kalshoven's 1991 article *A Comment to Chapter 11 of the Commander's Handbook on the Law of Naval Operations* for the U.S. Naval War College International Law Studies series mentions the Fourth Geneva Convention, art. 53, and Protocol I, art. 55, but does not discuss their applicability to environmental protection during armed conflict. Kalshoven, *supra* note 176, at 306. The Mallison article in the same volume is likewise silent on Protocol I. Sally V. Mallison & W. Thomas Mallison, *Naval Targeting: Lawful Objects of Attack, in* THE LAW OF NAVAL OPERATIONS 259-60 (U.S. Naval War College International Law Studies, Horace B. Robertson, Jr. ed., 1991).

[180]U.S. DEPT OF THE NAVY, NAVAL WARFARE (Naval Doctrine Publication No. 1 1994). *See also* CHAIRMAN OF THE JOINT CHIEFS OF STAFF, JOINT WARFARE OF THE U.S. ARMED FORCES (Joint Publication No. 1 1991).

[181]Roach, *supra* note 13, at 7.

[182]*See* General Assembly Resolution 47/37 (Nov. 25, 1992) ("(D)estruction of the environment, not justified by

prohibition influence a military commander fighting a desperate rear-guard action against an overwhelming force? Is the applicability of this prohibition always a question of degree?[183] What should one conclude from the fact that the Protocol I threshold for unlawful environmental damage does not bind all major military powers including the United States?

Many humanitarian protections under customary and conventional international law for persons, property, and objects are well-established and enjoy universal acceptance.[184] Can the same truly be said for the environmental gloss that was placed on these provisions over the last five years? Was any of this environmental gloss intended to apply to weapons other than of mass destruction?

The ICRC, the Naval War College symposium experts, and many others are not wrong in asserting that in many hypothetical cases existing law affords protection to the environment during armed conflict. It does, but is that protection adequate in a comprehensive way? When one steps back to gain perspective, does the patchwork of customary and conventional international law in fact form a coherent mosaic? It does not.

The critical issue is bindingness. There are over a dozen sources of law, but sorting out who is bound by what is a daunting task. Even the Security Council condemned the environmental damage caused by Iraq in the Gulf War as unlawful aggression - environmental terrorism - not as a breach of existing law pertaining to environmental protection during armed conflict.[185] Incoherence is the operative term. However well it may work in particular instances,

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military necessity and carried out wantonly, is clearly contrary to existing law."). *And see, e.g.*, Sharp, *supra* note 26, at 55; Simonds, *supra* note 8, at 200-201; Wilcox, *supra* note 25, at 310; Caggiano, *supra* note 2, at 504; *and* Okordudu-Fubara, *supra* note 2, at 205. *And see generally* Roach, *supra* note 13. "(T)he central notion that a mode of warfare must be relevant to a military purpose implies the 'illegality' of all modes of behavior that involve punitive or vindictive destruction, including, by implication, deliberate damage to resources, infrastructure and the environment." Falk, *supra* note 20, at 83. *Cf.* Simonds, *supra* note 8, at 166 ("(T)he existing law is inadequate.").

[183]For example, would destroying endangered species habitat by the construction of tank traps in a strategic mountain pass be permissible while breaching a dam and indiscriminately inundating thousands of acres would not? Does it matter that in the former instance no noncombatants are killed but in the latter thousands are?

[184]Roach, *supra* note 13, at 1-5 (protections afforded to noncombatants, hospitals, and places of worship *inter alia*).

[185]Simonds, *supra* note 8, at 193. A drawback to this approach - placing liability only on the unlawful aggressor - is that only the "losers" will be made accountable, at the expense of the environment as a whole. *Id.* at 179. After

existing law does not yet provide a comprehensive, permanent solution to the problem of environmental damage during armed conflict.

2. Unilateral "Guidelines" Are Not an Adequate Basis for Enforcement of International Law.

Is the ICRC guidelines approach effective if guidelines can be implemented on a pick-and-choose basis? Must a state adopt a guideline predicated on a point of customary international law to which it is a persistent objector? Will a state ignore those guidelines originating in conventions to which it is not a party, e.g., the U.S. vis-à-vis Protocol I?[186]

The ICRC guidelines approach may play a beneficial role in shaping state practice which in turn may contribute to the development of customary law, but the emphasis of the guidelines approach is prescriptive - conforming one's own military operations to existing law - not prohibitive - deterring, preventing, or punishing violations of existing law by others that occur during armed conflict.[187] The ICRC "Guidelines" as a whole are "soft law," to be sure. Individual provisions may be "hard" or "soft" law depending on the bindingness of their original sources.

The ICRC "Guidelines" are no substitute for the conventional and customary law sources from which they are drawn.[188] Thus, enforcement cannot proceed on the basis of the ICRC "Guidelines" themselves, which in their current iteration will become obsolete as international law

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the war, the U.N. General Assembly's Sixth (Legal) Committee, considering a Jordanian proposal to revise the ENMOD Treaty, reached "broad agreement that Iraq's deliberate and massive destruction of the environment . . . violated existing international law." Morris, *supra* note 5, at 777. The U.S. position before the Committee was that the damage violated the principle of military necessity enshrined in the Hague Regulations and the Fourth Geneva Convention. *Id.* at 777 n.9. *And see infra* part V.A.2 and B.1.

[186]*See* Simonds, *supra* note 8, at 208 ("(A)ny proposal seeking to curb wartime environmental destruction must address both . . . substantive insufficiencies and the lack of adherence by states to existing duties.").

[187]*Id.* ("(B)ecause of the 'military necessity' exception, the rules that do exist [in military manuals] do not result in absolute protection for the environment.").

[188]I do not mean to suggest that the ICRC asserted that its "Guidelines" may be used as some kind of a substitute criminal code or authoritative restatement. *See supra* note 157. I only point out that the Guidelines *themselves* do not provide any better basis for enforcement of the law pertaining to environmental protection during armed conflict.

changes over time. Rather, we must turn to original sources to determine whether a violation of international law will occur or has occurred, and if so, how to deter, prevent, or punish it.

Part IV
How Can The Law Pertaining To Environmental Protection During Armed Conflict Be Advanced In The Meantime?

In this part we will analyze the strengths and weaknesses of customary international law vis-à-vis conventional law. We will see how customary international law, properly developed, is strong. We will note the limitations of *opinio juris* and the recent tendency to neglect state practice as an element in the formation of customary law. We will also discuss problems of enforcement of international law. We will then examine the elements of effective enforcement of environmental protections during armed conflict. Lastly, we will analyze the particular importance of prevention to protection of the environment.

A. *The Strengths and Weaknesses of Customary International Law*

1. Customary International Law, Properly Developed, Is Strong.

In the absence of a convention with near universal participation like the four Geneva Conventions of 1949, the law must develop according to customary practice. Customary law is in some ways preferable to conventional law, as customary law generally binds all states whether they have acceded to it or not.[189] Customary law can spring from unilateral action and develop relatively quickly,[190] as for example did the continental shelf doctrine, beginning with the 1945 Truman Proclamation,[191] continuing with codification in the 1958 Geneva Convention on the

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[189]Caggiano, *supra*, note 2 at 498-99. I say "generally" in order to allow for opting-out by virtue of persistent objection. Another advantage of customary over conventional law is that it "will be easier to pursue on a practical level, particularly in times of conflict, than the contractual subtleties of an international agreement." *Id.* at 499.

[190]One might argue that nearly 25 years is not "relatively quickly" as compared to the eight years that it took for the Vienna convention and Montreal protocol on ozone to be achieved. *See supra* part II.D.2.

[191]Policy of the United States with Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf, Presidential Proclamation 2667, 10 Fed. Reg. 12303 (Sept. 28, 1945).

High Seas,[192] and progressing ultimately to recognition as customary international law in the 1969 *North Sea Continental Shelf Cases.*[193]

One must, however, avoid the temptation to debate the relative strengths and weaknesses of customary international law versus conventional international law. Both means may be used to achieve worthwhile ends.[194] One should take special note of the strength of nonderogable norms of customary international law, norms which have achieved the status of *jus cogens.* Nonderogable norms are not subject to opting-out and receive the benefit of universal jurisdiction, two distinct advantages to be sure.[195]

One view holds that "(t)he prohibition against the threat or use of force and fundamental human rights proscriptions . . . both belong to the body of international *jus cogens.*"[196] Another view holds that the right to a safe environment is already a peremptory norm.[197] As Prosper Weil pointed out in his discussion of relative normativity:

> There is . . . a growing . . . tendency to consider that peremptory norms create obligations for all states, and that each state has legal standing for those obligations to be fulfilled and to assert the responsibility of any other state that fails to observe them. So this enhanced normativity supposedly generates obligations *erga omnes* and, thereby, *actio popularis* . . . .[198]

And further:

> Although a state cannot have invoked against it an ordinary customary rule that it has rejected from the outset, there seems to be no way whatever for it to evade the peremptory character of a norm it has not accepted as such.[199]

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[192]Convention on the High Seas (1958), 450 U.N.T.S. 82, 13 U.S.T. 2312, T.I.A.S. 5200.
[193]The North Sea Continental Shelf Cases (F.R.G. v. Den.) (F.R.G. v. Neth.), 1969 I.C.J. 3.
[194]According to one view, customary norms have greater "utility" than treaty-based norms. Falk, *supra* note 20, at 82.
[195]*See supra* note 92.
[196]Bruno Simma & Philip Alston, *The Sources of Human Rights Law: Custom, Jus Cogens, and General Principles*, 1992 AUSTL. Y.B. INTL L. 82, 103. *See also* Simonds, *supra* note 8, at 190-91.
[197]*See supra* note 92 and accompanying text.
[198]Weil, *supra* note 92, at 430. An important related question is whether the corresponding rights are vested in individual nations or only in the international community as a whole. *Id.* at 432. *N.B.* The concept of an "international community" does not yet "represent an actually established order," rather "it is still groping towards existence." *Id.* at 441.
[199]*Id.* at 430.

But perhaps, most importantly:

> Whatever their rank, all norms produce legal effects, all are binding, and the breach of any one, no matter which, constitutes an internationally wrongful act. What, then, is the point of distinguishing among them?[200]

Derogable or nonderogable, once norms are recognized and accepted as customary international law they have legal effect and enjoy equal status with convention-based norms.[201] Thus, "(i)ndirect norms, by way of . . . [customary] international law of war, provide an existing framework that, if energetically interpreted and implemented, would protect the environment against military activities."[202] As we will see in the next section, however, the requirements for development of customary norms must be carefully adhered to.

2. The Limitations of *Opinio Juris*.

The current trend towards development of customary international law, one might say, is heavy on *opinio juris*, light on state practice. That is, the requirement of consistent state practice may be too often overlooked.[203] *Opinio juris* alone does not give rise to customary international law, it must be followed by consistent state practice before bindingness will attach.[204]

The danger in the modern trend is that:

> The process of customary law-making is thus turned into a self-contained exercise in rhetoric. The approach now used is *deductive*: rules or principles proclaimed, for instance, by the General Assembly, as well as the surrounding ritual itself, are taken not only as starting points for the possible development of customary law in the event that State practice eventually happens to lock on to these proclamations, but as a law-making process which is more or less complete in itself, even in the face of contrasting "external" facts [emphasis in original].[205]

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[200] *Id.* at 429.
[201] Statute of the International Court of Justice art. 38(1), 59 Stat. 1055, T.S. 993, 3 Bevans 1179.
[202] Falk, *supra* note 41, at 36.
[203] Simma & Alston, *supra* note 196, at 96.
[204] "(I)nternational law lives in the practice of states . . . ." American Society of International Law, *supra* note 24, at 224 (remarks of Captain Geoffrey Greiveldinger).
[205] Simma & Alston, *supra* note 196, at 89-90.

The difficulty is greater as regards peremptory norms. Peremptory norms are mainly "prohibitive in substance; they are rules of abstention."[206] As such, *opinio juris* plays an especially important role in the formulation of such norms.[207] However, proving the existence a negative - a rule of abstention - by resort to state practice, or rather that the lack of state practice is due to abstinence, is problematic.

One may conclude that "(t)he customary law-making process may be unable to provide logical and sound devices to identify peremptory norms of abstention. Such norms do not (and simply cannot) result from a gradual accretion of State practice eventually accepted as law. Rather, what we witness here is the express articulation of principles in the first instance, *ab initio* or progressively being 'accepted and recognized' as binding . . . . This process does not - or not yet - lead to the emergence of customary law but to the formation [only] of 'general principles of law recognized by civilized nations' in the sense of Article 38 of the ICJ Statute."[208] On the other hand, "law-making through international acceptance of general principles appears to be much better suited than customary law to meeting the requirements for the formation of *jus cogens*."[209]

The development of international environmental law, what little of it has developed out of customary norms or general principles,[210] has been more like the former (gradual accretion) than the latter (recognition *ab initio*). Further, Professor Gormley's reasoned analysis to the contrary notwithstanding, it is premature to assert that any customary norms of international environmental law have achieved the status of *jus cogens*. What then?

In his opening statement to the Nuremberg war crimes tribunal, American prosecutor Robert Jackson asserted:

> Unless we are prepared to abandon every principle of growth for International Law, we cannot deny that our own day has the right to institute

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[206] *Id.* at 103-104.
[207] *Id.* at 104.
[208] *Id.*
[209] *Id.* at 107.
[210] *See* Schafer, *supra* note 24, at 299. These norms would include state responsibility for transboundary pollution, the principle of *sic utere*, and the right of injured states to seek reparation.

> customs and to conclude agreements that will themselves become sources of newer and strengthened International Law.[211]

In short, the law, and indeed the law-making process, must be dynamic. The law-making process, as much as the law itself, must develop progressively in response to changes in the international community, its organizations, and values. International criminal law is a good case in point.

International criminal law, like human rights law, lags behind changing human values.[212] Changes in values lead to changes in legal principles which eventually lead to changes in state practice. "Indeed, international criminal law has experienced more evolution in the writings of scholars than in the practice of states. The tension between what is and what ought to be has characterized the growth of all legal systems. The proper balance between them, however, depends on the values and goals sought to be achieved by a given legal system. The earnest search for this balance invariably leads to the growth of law."[213]

American international lawyers and judges are criticized for too readily pronouncing norms of customary international law without a critical examination of the sources of those rights and without a searching inquiry as to whether such rights have in fact been received into customary international law.[214] This is a sort of "progressive, streamlined theory of customary law, more or less stripped of the practice requirement."[215] We must therefore be cautious lest we chauvinize international law, a predilection toward "assuming that American values are synonymous with those reflected in international law."[216] In sum: progressive development, yes; chauvinistic development, no.

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[211] 2 TRIAL OF THE MAJOR WAR CRIMINALS BEFORE THE INTERNATIONAL MILITARY TRIBUNAL 147 (Secretariat of the International Military Tribunal ed., 1947) (Opening statement of Justice Robert H. Jackson).
[212] M. Cherif Bassiouni, *"Crimes Against Humanity": The Need for a Specialized Convention*, 31 COLUM. J. TRANSNAT'L L. 457, 486 (1994).
[213] *Id.* at 486-88.
[214] Simma & Alston, *supra* note 196, at 86-87, 95 ("(V)irtually every right which recent U.S. governments have been prepared to criticize other governments for violating, are held to be part of customary international law.").
[215] *Id.* at 107.
[216] *Id. at* 94.

The irreducible minimum of international law is that *opinio juris* and state practice are *both* required elements of customary norms. In the absence of a Fifth Geneva Convention or other new treaty, our focus on the law pertaining to environmental protection during armed conflict must be directed toward the development of customary norms. Moreover, and precisely because there are a great many sources of legal obligation, our particular focus must be on state practice.

During armed conflict, the conduct of the armed forces themselves is the most important evidence of *opinio juris* and state practice. How armed forces are employed speaks volumes about which norms are recognized and which are not. Consequently, we should define a role for armed forces to play in protecting the environment during armed conflict including deterring, preventing, and punishing unjustified environmental damage. This will not only help to strengthen international law by solidifying customary norms, it will also aid in the law's effective enforcement.

3. Weak Enforcement Is the Bane of International Law in General and of Protection of the Environment During Armed Conflict.

> *(T)he current legal order clearly proscribes environmental damage that is not justified by military necessity during armed conflict; equally clear, however, is that no institutionalized mechanism exists at the international level to strengthen deterrence by facilitating individual and state accountability for even the most flagrant violations of law.*[217]

No more harsh a criticism can be leveled against a legal system than that it lacks for enforcement, that it has no means to give itself effect, to impose its order on its regulated

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[217]Sharp, *supra* note 26, at 3.

population.[218] This criticism has been leveled against international law, generally, and against the environmental protections in the law of armed conflict, particularly.[219]

One of the "structural weaknesses" inherent in international law is the "inadequacy" of its enforcement mechanisms.[220] Individuals have no standing to assert violations of international environmental law before the International Court of Justice (ICJ) and other international tribunals[221] and states are loath to impose self-restraints on sovereign prerogatives.[222] The time has come, however, to re-evaluate the "current practice of subordinating effective enforcement [of international environmental law] to state sovereignty."[223]

The aftermath of the Gulf War produced a torrent of legal literature[224] calling for Iraq to be held accountable for dumping oil into the Persian Gulf and for igniting Kuwaiti oil wells, among other environmentally damaging activities.[225] Still, despite the "astonishing cooperative

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[218]*Id.* at 4 ("Simply having a normative international legal order prohibiting environmental damage is insufficient to deter violations of these norms."). "(I)n addition to being substantively inadequate the existing law is procedurally deficient." Simonds, *supra* note 8, at 202. "The current international procedural and substantive regime does little to implement . . . [a] preventive philosophy." *Id.*

[219]*See, e.g.*, Caggiano, *supra* note 2, at 504. The "shortcomings" associated with "self-policing" are "obvious." Okordudu-Fubara, *supra* note 2, at 213.

[220]Weil, *supra* note 92, at 414. The structure of international law is changing from a compendium of independent nations pursuing self-interests to a community drawn together by overarching necessities in search of greater cooperation. *Id.* at 422. As the international community evolves from greater diversity to greater unity, it should become both easier and more beneficial to advance conventional law solutions.

[221]McClymonds, *supra* note 4, at 633; Schwartz, *supra* note 82, at 358-59. Recall that ICJ jurisdiction is consent-based. Okordudu-Fubara, *supra* note 2, at 214-15.

[222]"[International law] shows a greater facility in preserving the status quo than in doing justice." Horace B. Robertson, Jr., *Contemporary International Law: Relevant to Today's World?*, NAVAL WAR C. REV., Summer 1992, at 89, 91 (quoting Richard R. Baxter, former American judge on the International Court of Justice). "Although international courts may offer some guiding principles for states regarding their conduct in the environmental area, they can do little to prevent environmental damage." Harvard Law Review, *supra* note 100, at 1562.

[223]Orava, *supra* note 56, at 175.

[224]*See, e.g.*, Paul W. Kahn, *Lessons for International Law From the Gulf War*, 45 STAN. L. REV. 425 (1993); Jonathan P. Edwards, *The Iraqi Oil "Weapon" in the 1991 Gulf War*, 40 NAVAL L. REV. 105 (1992); Evan J. Wallach, *The Use of Crude Oil by an Occupying Power as a Munition de Guerre*, 41 INTL & COMP. L.Q. 287 (1992); Laura Edgerton, *Eco-Terrorist Acts During the Persian Gulf War: Is International Law Sufficient to Hold Iraq Liable?*, 22 GA. J. INTL & COMP. L. 151 (1992); Christopher C. Joyner & James T. Kirkhope, *The Persian Gulf War Oil Spill: Reassessing the Law of Environmental Protection and the Law of Armed Conflict*, 24 CASE W. RES. J. INTL L. 29 (1992). *See also* Gupta, *supra*, note 9; Leibler, *supra*, note 6; Sharp, *supra*, note 26; and Okordudu-Fubara, *supra*, note 2.

[225]The multifarious impacts of Iraq's actions were widely reported and loudly condemned. *See supra* notes 6 and 9. Less well understood is the extent to which the "dumping" was actually the result of Coalition air strikes on Iraqi tankers and oil platforms among other contributing factors. *See* Arkin, *supra* note 5, at 7-8. Was the Gulf

effort of the international community during the recent Gulf Conflict," and despite United Nations Security Council Resolution 687,[226] little has been done to hold Iraq or any Iraqis liable,[227] civilly or by of war crimes.[228] Enforcement remains the Achilles Heel of the international legal system.[229]

International tribunals, with the limited exception of war crimes tribunals, are effectively unavailable to hold states or individuals accountable.[230] States, especially in matters of armed

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War evidence that existing law is adequate or inadequate to protect the environment during armed conflict? Some say yes. Some say no. As to the former *see* Roach, *supra* note 13, at 9. As to the latter *see* Simonds, *supra* note 8, at 206. The Gulf War was undoubtedly good reason to examine the law pertaining to environmental protection during armed conflict, but international law, no less than military art and science, should not fight the last war, that is, its focus must be broader than the confines of a particular conflict. For example, what if the oil wells that were set afire were located in Iraq not in occupied Kuwait? Or, what if the oil wells that were set afire were burned by Allied forces during an Iraqi counter-attack into Kuwait and a credible case could be made that burning the oil served the legitimate purpose of denying war materiél to the enemy? These and innumerable other conceivable situations illustrate the danger of overemphasizing the importance of the Gulf War. The law cannot be said to be adequate and recommendations for its further development cannot be said to be wise simply because they fit the peculiar circumstances of any one conflict.

[226]Security Council Resolution 687 of May 2, 1991 imposed the terms of surrender ultimately accepted by Iraq. The resolution is lauded as the first formal recognition of liability for environmental damage during armed conflict, although it is criticized for its ambiguity. *See* Gupta, *supra* note 9, at 269-71. The claims process, whereunder states must consolidate and submit claims on behalf of individuals, has yet to bring relief. *See* McClymonds, *supra* note 4, at 632. *Cf.* Sharp, *supra* note 26, at 58 ("Actually, the international community has done a superb job in holding Iraq accountable for the environmental damage that resulted from its actions during the Persian Gulf War."). *And see* Simonds, *supra* note 8, at 178 ("During the recent Gulf War, the U.N. Security Council used its power to enact legally binding resolutions to hold Iraq liable for environmental damage. This technique has created legal precedent for future armed conflicts. It may encourage states to take environmental factors into account before engaging in certain actions during war, and courts may cite it as precedent for holding states liable for environmental damage during future armed conflicts.").

[227]Leibler, *supra* note 6, at 117; Caggiano, *supra* note 2, at 504. *Cf.* Christopher C. Greenwood, State Responsibility and Civil Liability for Environmental Damage Caused by Military Operations 9-11 (Sept. 16, 1995) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI).

[228]"War crimes trials should be initiated for several reasons. First, all nations have an obligation to search for persons accused of grave breaches and to bring them to trial. Second, if the international community fails to continue the precedent of war crimes trials, then the practice of states - through their contribution to the development of customary international law - may erode the authority to prosecute offenders. Third, Security Council resolutions and the pronouncements of world leaders will be of no deterrent value in the future if the flagrant violations of Iraq go unpunished." Sharp, *supra* note 26, at 50-51.

[229]"There are virtually no avenues open for the implementation of existing environmental law of war." Falk, *supra* note 20, at 93.

[230]Okordudu-Fubara, *supra* note 2, at 214-15. In the "void created by the lack of a permanent and apolitical judicial mechanism," "politicized decisionmaking" takes over. Sharp, *supra* note 26, at 55.

conflict, eschew binding arbitration and the compulsory jurisdiction of the ICJ,[231] in favor of the flexibility of negotiation and *ex gratia* payments of compensation and other voluntary remedies.[232] They remain reluctant to subordinate their sovereignty to international control particularly where state survival may be in issue.[233] War crimes trials, little used for environmental crimes even in World War II, are a rarity.[234] The lack of a judicial forum is a serious deficiency.[235]

Another handicap is lack of resolve. States will be ambivalent about enforcing international law when they have trouble defining national interests favoring environmental protection. Professor Sohn observed:

> On the international scene, it is difficult to persuade governments, which as a group are the international lawmakers, to agree on enforcement against themselves in the event that they violate international law. It is not the law that is soft, but the governments.[236]

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[231]The ICJ does not have much experience in environmental protection cases. Harvard Law Review, *supra* note 100, at 1562. Consider also the impact of reservations in submittals to the jurisdiction of the ICJ.

[232]Almond, *supra* note 34, at 169, 172-73, 181 n.181. Momentum is gaining in the United Nations for the creation of a permanent international criminal court modeled on the Nuremberg war crimes tribunals of World War II. *See* John M. Goshko, *U.N. Moving Toward Creation of Criminal Court*, WASH. POST, Apr. 21, 1996, at A27. The existence of such a court would undoubtedly help with the enforcement of international law regarding genocide and crimes against humanity even if its docket is controlled to some degree by the Security Council. *Id.* Environmental damage during armed conflict, even that which is widespread, long-term, and severe, may not constitute genocide or a crime against humanity. *See infra* part V.B.2. *And see* Sharp, *supra* note 26, at 62, 65, 66. The temporary criminal tribunals for Rwanda and Bosnia-Herzegovina are not known to be actively considering environmental prosecutions. *See* Buergenthal, *supra* note 115, at 270-72.

[233]Caggiano, *supra* note 2, at 506. "(C)lassical norms of sovereignty come into direct conflict with the absolute necessity to preserve Earth's delicate ecological balance." Gormley, *supra* note 23, at 93.

[234]Only one case of environmental damage was successfully prosecuted at Nuremberg, that of Nazi administrators charged with violation of the obligations of an occupying power by laying waste to Polish forests. *See infra* note 295 and accompanying text. Another case, based on a scorched earth defense, resulted in acquittal. U.S. *v.* Wilhelm List, *et al.*, United Nations War Crimes Commission, 8 Law Reports of Trials of War Criminals 69 (1949) (Nazi General Lothar Rendulic not guilty of destruction in Finnmark province of Norway).

[235]Consider the following: "(H)esitancy by the world community to enforce the law of war allows nations acting under the guise of self-defense to wreak havoc on neighboring states." Caggiano, *supra* note 2, at 504.

[236]Sohn, *supra* note 81, at 13. Some would argue that this is no less true for the United States than for other nations. It is especially unlikely that governments will impose self-restraints, particularly new and abstract ones, during armed conflict. Almond, *supra* note 34, at 130. "The time has come to put aside fears of being judged, as hard and as impractical as that may sound. Only in this way will a stable situation come to pass in the post-Cold War era." Caggiano, *supra* note 2, at 506.

As with war crimes, the enforcement of the law pertaining to environmental protection during armed conflict will fail without a firm normative basis. Without a firm normative basis, enforcement will be no more than "victor's justice."[237] The winner and the loser must both be accountable. Even-handed accountability builds respect and support for the law.

The International Law Commission Draft Code of Crimes Against the Peace and Security of Mankind (1991) includes "Willful and Severe Damage to the Environment," a crime which is "so vaguely defined that it fails any reasonable test of the 'principles of legality' under any of the world's major criminal justice systems" and which "has no basis in conventional or customary international law."[238] Another proposal, a crime of "ecocide," is likewise unavailing at present; this initiative is not yet recognized as international law.[239] Neither are Articles 35 or 55 of Protocol I likely to be used as a basis for war crimes prosecutions.[240]

Post-conflict reparations are another inadequate means of enforcement or deterrence. Once standard, war reparations have been rare since World War I,[241] the U.N. claims commission for Iraq notwithstanding.[242]

B. ***The Aspects of Effective Enforcement***

1. Effective Enforcement of Environmental Protections During Armed Conflict Must Include Deterrence, Prevention, and Punishment.

> *Anticipation of harm to the environment must be cultivated so that measures can be taken before the activities affecting the environment cause irreparable damage.*[243]

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[237]*See, e.g.,* Caggiano, *supra* note 2, at 505. "Environmentally harmful practices of the victors have in the past proved almost impossible to stigmatize in any legally authoritative manner, that is by formal action that included the assent of leading governments." Falk, *supra* note 20, at 81.
[238]Bassiouni, *supra* note 212, at 485.
[239]Caggiano, *supra* note 2, at 481 n.25. Ecocide, by one definition, constitutes the disruption or destruction, in whole or in part, of a human ecosystem. Professor Falk recommends the adoption of such an offense - "Crimes Against Nature" - into the law of armed conflict. Falk, *supra* note 20, at 94.
[240]*See* Bothe, *supra* note 34, at 348.
[241]Greenwood, *supra* note 227, at 7-8.
[242]Gupta, *supra* note 9, at 269-71.
[243]Almond, *supra* note 43, at 310.

The approach to environmental protection during armed conflict must be preventative based on a philosophy of avoidance of irreversible, catastrophic, and permanent environmental damage.[244] An effective enforcement scheme thus requires three things: deterrence, means to preempt or preclude conduct which will cause environmental damage; prevention, means to halt or reverse action which is causing environmental damage; and, punishment, means of establishing culpability and accountability for environmental damage that has occurred. All three - deterrence, prevention, *and* punishment - which have conceptual counterparts in the law of armed conflict, are essential to achieve control over the actions of states at the time and place and in the manner best-suited to protect the environment.[245]

In all three instances "(t)he primary strategy with regard to the environment . . . [must be to] establish control."[246] Control must be based on the principle of limitation, "a concept which is also important in the law of armed conflict."[247] Establishing limitations on environmental damage will translate into restraints on belligerents.[248] The most important restraint may be deterrence of the use of force itself.[249] Some suggest that a failure of deterrence is a major cause of Iraqi environmental devastation during the Gulf War.[250] Deterrence, like prevention and punishment, requires both a normative system and an enforcement mechanism.[251]

International law should also maximize the enforcement options and *fora* available to it. Several commentators recommend improvements to judicial processes.[252] Among the options

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[244]Simonds, *supra* note 8, at 219.
[245]Almond, *supra* note 43, at 299. "There are rising expectations that human activities that create severe harm to the environment must be curtailed." *Id.* at 300.
[246]*Id.* at 299. *And see* Harry H. Almond, Jr., *International Environmental Law: The Impact and Implications of Municipal Environmental Law*, 2 ILSA J. INTL & COMP. L. 1, 3 (1995) ("The effectiveness of international environmental law requires the exercise of authority, and even force, to ensure controls commensurate with the prescriptions adopted.").
[247]Baker, *supra* note 10, at 354.
[248]*See* Caggiano, *supra* note 2, at 354-55. The limitations principle is also contained in the Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration. *Id.* at 355.
[249]Almond, *supra* note 43, at 320.
[250]Sharp, *supra* note 26, at 55.
[251]*Id.* at 5. "Effective deterrence demands criminal responsibility and state accountability." *Id.* at 66.
[252]*Id.* at 65 ("(T)he preferred option is prosecution by a tribunal under the cognizance of the Security Council. If that is not possible, then the United States should be the moving force behind an international ad hoc tribunal

available is the new permanent court now under consideration by the United Nations.[253] Another suggestion is to use the court created by the 1982 Law of the Sea Convention.[254]

2. Preventative Remedies Are Especially Important in Environmental Matters Where No Amount of Monetary Compensation May Be Adequate to Redress Environmental Destruction and the Corresponding Deleterious Impact on Quality of Life.

There is a "growing awareness" that environmental damage "cannot be adequately compensated in pecuniary terms, nor readily reversed or restored."[255] Also, "the threat of post-war financial obligations is not likely to deter states or their individual representatives from engaging in environmental destruction during a war."[256] Preventative remedies are peculiarly important to environmental protection.

Take, for example, the destruction of species. Although millions of species have been identified, the catalog of species is far from complete. The losses we may unknowingly suffer from the extinction of species whose identity and human benefits we do not yet know may be great.[257] Precautions must be taken.

The precautionary principle of international law holds that substances or activities harmful to the environment should be regulated even if their full harmful effects have not been conclusively demonstrated.[258] The principle advances the notion that prevention is preferable to punishment in protecting the environment, reversing the traditional logic of the law that sanctions

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convened in a manner similar to the tribunal convened at Nuremberg."); Simonds, *supra* note 8, at 210 ("(A) new environmental convention is not really necessary if certain gaps in the law are filled. I suggest a third path: reforming existing law and creating judicial review mechanisms to balance the competing considerations of military necessity and environmental protection.").

[253]*See supra* note 232.

[254]Gasser, *supra* note 153; Leibler, *supra* note 6, at 80; Sharp, *supra* note 26, at 26.

[255]Almond, *supra* note 43, at 313.

[256]Leibler, *supra* note 6, at 77. Thus, the state responsibility doctrine is not much of a deterrent. *See infra* part V.C.1.

[257]"The value of this genetic heritage is, quite literally, incalculable." Tennessee Valley Authority *v.* Hill, 437 U.S. 153, 178, 78 S.Ct. 2279, 2293 (1978) (quoting legislative history of the Endangered Species Act, 16 U.S.C. § 1531 *et seq.*).

[258]McClymonds, *supra* note 4, at 613. The sources of the precautionary principle are said to be Principle 15 of the Rio Declaration, *id.*, and the 1985 Vienna Convention and 1987 Montreal Protocol on ozone depleting emissions. Hickey & Walker, *supra* note 114, at 423. The principle is a rule of restraint. *Id.* at 426.

may be imposed only after harm has occurred.[259] Along with international environmental law in general, this principle is expanding its focus from transboundary, to regional, and to global concerns.[260] The principle is growing; it is emerging as an international obligation.[261]

The law of armed conflict and international environmental law share common values.[262] The "larger composite principle" of these bodies of law is "one and the same;" it is "conservation."[263] The former limits destruction. The latter limits exploitation (a consequence of which may also be destruction). Both protect man.[264] The objectives? Protection of resources for common use and exploitation; maintenance of the regenerative capacity of the environment; and, promotion of the well-being of all.[265]

Part V
What *Is* The Existing Law Relative To Protection Of The Environment During Armed Conflict?

> *(I)nternational law, more by accident than by design, does impose a degree of accountability (including individual accountability) for deliberate wartime environmental damage.*[266]

In this part we will review the law of armed conflict, humanitarian law, and international environmental law, *all* of which are pertinent to environmental protection during armed conflict.[267] Regarding the law of armed conflict, we will look at the principles of military necessity, proportionality, discrimination, and humanity and at the Hague Convention No. IV

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[259]McClymonds, *supra* note 4, at 615-19. *Cf.* The prevailing doctrine of *sic utere* which uses a post-delictual approach. Hickey & Walker, *supra* note 114, at 427-29.
[260]Hickey & Walker, *supra* note 114, at 430.
[261]*Id.* at 437, 453.
[262]Schafer, *supra* note 24, at 291.
[263]*Id.* at 318.
[264]*Id.*
[265]Almond, *supra* note 43, at 309.
[266]Leibler, *supra* note 6, at 132.
[267]"Environmental damage during armed conflict involves two bodies of international law - the law of war and environmental law." Simonds, *supra* note 8, at 166. Several detailed analyses of these bodies of law have already been done. *See generally* Roach, *supra* note 13 for a good encapsulation and helpful bibliography. *And see* Sharp, *supra* note 26; Leibler, *supra* note 6; *and* Simonds, *supra* note 8.

Respecting the Laws and Customs of War on Land of 1907 ("Hague Regulations").[268] Regarding humanitarian law, we will look at the modern[269] humanitarian conventions including the Geneva Convention Relative to the Protection of Civilian Persons in Time of War of 1949 ("Fourth Geneva Convention")[270] and the Additional Protocol to the Geneva Conventions of 1949, and Relating to the Protection of the Victims of International Conflicts, of 1977 ("Protocol I").[271] Regarding international environmental law, we will look at the principles of state responsibility, the Stockholm and Rio Declarations, the World Charter for Nature,[272] and the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques of 1977 ("ENMOD Treaty"). We will see that certain environmental damage during armed conflict is proscribed for two reasons: historically, to protect human beings; and, more recently, to protect the environment in its own right.[273] We will note that the basic precept of environmental protection during armed conflict - prevention of unjustified environmental damage - devolves from the same principle of limitation that underlies humanitarian law[274] and environmental law.[275]

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[268]Hague Convention Respecting the Laws and Customs of War on Land (IV), Oct. 81, 1907, 36 Stat. 2277, T.I.A.S. No. 539.

[269]"Modern" in this context is construed to mean subsequent to the United Nations Charter of 1945.

[270]1949 Geneva Convention Relative to the Protection of Civilian Persons in Time of War, 6 U.S.T. 3516, 75 U.N.T.S. 287.

[271]Protocol Additional to the Geneva Convention of August 12, 1949, and Relating to the Protection of the Victims of International Armed Conflicts, U.N. Doc. A/32/144 (1977). Limited further support comes from the 1925 Geneva Protocol for the Prohibition of Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare; the 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and Their Destruction; and, the 1980 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects. *See* ARTHUR H. WESTING, CULTURAL NORMS, WAR AND THE ENVIRONMENT app. 2 (1988). The preamble to the Conventional Weapons Convention, recalling Protocol I, provides: "(I)t is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment." THE ENVIRONMENTAL IMPACT OF WAR app. 2 (Glen Plant ed., 1992). Nuclear weapons and the treaties that regulate them also must be considered. *See* Almond, *supra* note 34, at 178-79.

[272]World Charter for Nature, *supra* note 90.

[273]Baker, *supra* note 10, at 351-52. "The traditional law governing the conduct of belligerents during war seeks primarily to protect humans. It protects the natural environment only indirectly and inadequately. Although some modern treaties specifically prohibit environmental damage, as a whole they are incomplete and are not widely accepted." Simonds, *supra* note 8, at 168.

[274]Baker, *supra* note 10, at 354. *See also* Gasser, *supra* note 138. "Customary international law, in effect,

A. *The Customary Law of War*

Protection of the environment under the law of armed conflict is a relatively new phenomenon.[276] Even the United Nations Charter is silent on this point.[277] However, a variety of environmental protections, old and new, express and extrapolated, may be found under the law of armed conflict.[278]

1. Military Necessity; Proportionality; Discrimination; and, Humanity.

In the main, the customary international law of armed conflict is based on the four principles of military necessity, proportionality, discrimination, and humanity.[279] Humanity is the principle that unnecessary suffering should be avoided.[280] Discrimination is the principle that combatants and non-combatants must be distinguished.[281] Proportionality is the principle that the extent of armed force to be used must be reasonably related to a military objective for which the use force is necessary.[282] Military necessity, the most important to environmental protection

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compels commanders to consider potential environmental ramifications of combat actions and to weigh them against the expected tactical advantage." Wilcox, *supra* note 25, at 304.

[275]Baker, *supra* note 10, at 354-55.

[276]Diederich, *supra* note 10, at 143.

[277]*Id.*

[278]A number of excellent treatments of this subject have already been done including Almond, *supra* note 34; Sharp, *supra* note 26; and, Roach, *supra* note 13. *See also* Roberts, *supra* note 50, at 4-19. It will not be my purpose here to duplicate them.

[279]Caggiano, *supra* note 2, at 494 *et seq.* "(T)he inherent generality and vagueness with which these principles are expressed exposes them to divergent interpretations and wholesale exploitation and avoidance." Leibler, *supra* note 6, at 103. Does their "vast uncertainty" prevent them from "operating as effective deterrents during the course of battle"? *See id.*

[280]Leibler, *supra* note 6, at 100.

[281]*Id.* at 101 ("(T)he only legitimate object which states should endeavor to accomplish during war is to weaken the military forces of the enemy."). *See* St. Petersburg Declaration, *supra* note 10.

[282]The 1987 ICRC Handbook of the Law of War for Armed Forces defines proportionality as "damage which is [not] excessive in relation to the value of the expected result of the whole military operation." Leibler, *supra* note 6, at 99. Proportionality is more than economy of force and more than simple prudence. It is an objective criterion used as a check on excessive violence. Caggiano, *supra* note 2, at 497. Does proportionality allow for greater environmental damage as a trade-off for a shorter war brought about by the application of decisive (overwhelming) force? *See* Carruthers, *supra* note 64, at 49. For example, would a longer Gulf War have been preferable if the "oil weapon" had not been used by Iraq? Could President Bush have rationalized thousands of additional American casualties in order to achieve cleaner skies and seas in the Middle East? Would the American public have tolerated it? Would any country? Take, for example, the battle for Hue in 1968 in which U.S. Marines were initially precluded from using heavy weapons against this ancient cultural and religious center. The house-to-house fighting that resulted caused Marine casualties to rise to such a level that the heavy weapons ban was lifted and the city promptly secured. *See* Garrett, *supra* note 48, at 3.

during armed conflict, is the principle that the use of force itself must be reasonably necessary to achieve a legitimate military objective.[283]

A frequent criticism of the military necessity doctrine is that it prohibits only that which the most powerful nations find militarily *un*useful.[284] For example, while the United States endorsed the renunciation of antipersonnel mines two years ago, it wants to continue to use these weapons in the Persian Gulf Region and in Korea.[285] States want to maintain military capability that they believe to be essential to their defense, at least until a new capability becomes available.[286]

The malleability of the military necessity principle is an important part of its enduring acceptance in customary international law[287] and a reason why environmentalists and others argue for limitations to be placed on it regarding environmental destruction during armed conflict.[288] At present, the principle of military necessity is the "key operating standard" to determine whether destruction of the environment during armed conflict is lawful.[289] Some

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[283]"Military necessity is not established fact, but an interpretation." Caggiano, *supra* note 2, at 499. It is intended as a self-restraint on the use of force, a justification for the use of force against actual military threats. *Id.* at 497. It is a "minimum precondition" for the use of force. Leibler, *supra* note 6, at 98. It is not absolute, that is, unqualifiedly superior to other considerations. Falk, *supra* note 20, at 83.

[284]Falk, *supra* note 20, at 80 ("(W)hat dominant states find militarily useful in war is unlikely to be prohibited, and, if it is, the prohibition is unlikely to be respected in the next war . . . ."). We must be careful to keep in mind, however, that military necessity means significantly more than militarily useful. *See* Simonds, *supra* note 8, at 219.

[285]Bradley Graham, *Pentagon Prepared to Forgo Most Land Mine Use Except in Korea, Persian Gulf*, WASH. POST, Apr. 19, 1996, at A26; Associated Press, *Clinton Rejects a Ban on Use of Land Mines*, WASH. POST, May 17, 1996, at A24.

[286]Graham, *supra* note 285.

[287]Consider the following: "The laws of armed conflict are not subject to, or restricted by, the principle of military necessity. Rather, the principle of military necessity is subject to, and restricted by, the laws of armed conflict." Sharp, *supra* note 26, at 30.

[288]*See, e.g.*, Caggiano, *supra* note 2, at 500 ("To leave determinations of military necessity solely in the hands of the belligerent parties would transform a powerful international check against violence into an ineffectual appeal to the conscience of a warring nation."). One view is that only the "overwhelming proportion" of "reasonably expected damage" which "measurably contributes to the achievement of the desired military goal" should be allowed. Leibler, *supra* note 6, at 104. Even under this standard, only "excessive environmental damage" would be prohibited. *Id.* at 105.

[289]Almond, *supra* note 43, at 334-35.

believe that military necessity is overused as justification for environmental destruction.[290] Moreover, it may do little to stop environmental damage before it occurs.[291]

2. The Hague Regulations.

The first modern codification of the laws of war, the Hague Regulations, provide that the right of belligerents to adopt means of injuring the enemy is not unlimited.[292] The Hague Regulations also forbid the destruction of enemy property "unless such destruction . . . be imperatively demanded by the necessities of war."[293] Note that the Hague Regulations apply only to "property" of "the enemy" and not to the environment *per se*.[294] The Hague Regulations also impose an obligation on occupying forces to preserve property in occupied territory in the nature of usufruct.[295]

The Hague Regulations, along with the Fourth Geneva Convention and Protocol I, incorporate the principle of military necessity.[296] The Hague Regulations are criticized, however, for their technical obsolescence to modern warfare[297] and their lack of an enforcement mechanism.[298] On the other hand, the preamble to the Hague Regulations contains the so-called "Martens Clause."

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[290]Caggiano, *supra* note 2, at 496-97, 500. Another way of viewing it is as a matter of balance vice limitation. Diederich, *supra* note 10, at 158.
[291]Simonds, *supra* note 8, at 170.
[292]Roach, *supra* note 13, at 1.
[293]Hague Regulations, art. 23(g) *discussed in* Simonds, *supra* note 8, at 170-71.
[294]Caggiano, *supra* note 2, at 486. Limitations on the destruction of property are circumscribed by the nature of property itself, i.e., such limitations do not apply to matter which is not property including ". . . climate, the atmosphere, the sea, and marine life . . . ." Leibler, *supra* note 6, at 105-106. *Cf.* Sharp, *supra* note 26, at 11 ("When one considers the environment in its component parts as property of the enemy, this provision [Art. 23(g)] offers substantial environmental protection.").
[295]Baker, *supra* note 10, at 375; Roach, *supra* note 13, at 1; Sharp, *supra* note 26, at 11. Article 55 of the Hague Regulations, (the anti-plunder provisions) was the basis for prosecution of the Nazi officials charged with destruction of Polish forests. Caggiano, *supra* note 2, at 486-87.
[296]Caggiano, *supra* note 2, at 488; Sharp, *supra* note 26, at 17.
[297]Caggiano, *supra* note 2, at 494. None of today's major weapons systems - tanks, aircraft, ballistic and other missiles, long-range naval and field artillery, to name a few - were in existence in 1907. Thus, a state's responsibility under Article 3 of the Hague Regulations is affected by this limitation through operation of the intertemporal rule.
[298]Sharp, *supra* note 26, at 12.

The "Martens Clause" provides that "the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations as they result from the usages established among civilized nations, from the law of humanity, and the dictates of public conscience."[299] The clause and thus the Hague Regulations remain important because of this grounding in customary international law.[300] That is, it "extends the law of war to states that have failed to accede to recent developments in treaty law."[301] A similar clause is contained in Article 1(2) of Protocol I.[302]

The International Military Tribunal at Nuremberg held that the Hague Regulations are declaratory of customary international law.[303]

B. ***Modern Conventional Humanitarian Law***

1. The Fourth Geneva Convention.

The Fourth Geneva Convention bars all destruction of property not absolutely necessary for lawful military purposes.[304] The Convention also shields protected persons and their property.[305] Here, too, the protection afforded is rooted in the concept of property.[306]

Article 53 of the Convention provides:

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[299]Hague Regulations, *supra* note 268, preamble. In its entirety the clause reads: "Until a more complete code of the laws of war has been issued, the High Contracting Parties deem it expedient to declare that, in cases not included in the Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of public conscience."

[300]Diederich, *supra* note 10, at 141. "If principles of international law derived from established custom include environmental law, the Martens Clause goes a long way toward filling the gaps of the law of war vis-à-vis the environment. (T)he 'dictates of public conscience' portion of the Martens Clause similarly fills the gaps, as these dictates 'certainly include environmental concerns'." Simonds, *supra* note 8, at 198.

[301]Falk, *supra* note 20, at 84.

[302]*Id.*

[303]Sharp, *supra* note 26, at 9.

[304]Fourth Geneva Convention, art. 53 *discussed in* Simonds, *supra* note, 8 at 171-72. Another position is that this convention is not customary international law because state practice is based only on compliance with the treaty-based obligations themselves. Caggiano, *supra* note 2, at 493.

[305]Fourth Geneva Convention, *supra* note 270, art. 33. One suggestion is to treat the environment the same as a noncombatant person. Diederich, *supra* note 10, at 156-57. This is a conservation approach. *Id.* at 157.

[306]Article 53 is to the same effect as Article 23 of the Hague Regulations with the additional limitation that it applies only to occupied territory. Leibler, *supra* note 6, at 106. *See also* Falk, *supra* note 20, at 88. The ICRC position is that this protection extends to the environment. *See* Roach, *supra* note 13, at 4.

> Any destruction by the Occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or cooperative organizations, is prohibited, *except where such destruction is rendered absolutely necessary by military operations* [emphasis added].[307]

The provisions of this convention are generally considered declaratory of customary international law.[308]

2. Protocol I.

Protocol I, a convention adopted but not ratified by the United States,[309] addresses environmental protections directly.[310] Part III (Methods and Means of Warfare, Combatant and Prisoner-of-War Status), Section I (Methods and Means of Warfare), Article 35 provides, in part:

> 3. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term *and* severe damage to the natural environment [emphasis added].[311]

Correspondingly, Part IV (Civilian Population), Chapter III (Civilian Objects), Article 55 provides:

> 1. Care shall be taken in warfare to protect the natural environment against widespread, long-term *and* severe damage [emphasis added]. This protection includes a prohibition of the use of methods or means of warfare which are

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[307]Fourth Geneva Convention, *supra* note 270, art. 53. Note the use of "absolutely necessary" vice necessary. Is this a higher standard than "military necessity"? Might that be because the provision relates to noncombatants in occupied territory?

[308]Sharp, *supra* note 26, at 14.

[309]Ratification of Protocol I by the United States appears unlikely. The treaty is not before the Senate. *See* Bernard H. Oxman, Comment, *Environmental Warfare,* 22 OCEAN DEV. & INT'L L. 433, 434 n.6 (1991). A reservation ("understanding") was filed upon acceptance in 1977 to the effect that the treaty was construed not to prohibit the use of nuclear weapons. *See* Almond, *supra* note 34, at 167. Acceptance of a treaty imposes on a state an obligation to refrain from acts which would defeat the object and purpose of the treaty until the state shall have made clear its intention not to ratify the treaty. Vienna Convention on the Law of Treaties, May. 23, 1969, art. 18(a), U.N. Doc. A/CONF. 39/27, 63 A.J.I.L. 875, 8 I.L.M. 679.

[310]Protocol I also has a number of indirect environmental protections including Article 48 (discrimination principle), Article 51 (protection of the civilian population), Article 54 (protection of objects indispensable to the survival of the civilian population), Article 56 (protection of works and installations containing dangerous forces), Article 57 (precautions in attack), Article 60 (demilitarized zones), Article 69 (provision for basic needs in occupied territory), and Article 91 (state responsibility). Plant, *supra* note 271.

[311]Protocol I, art. 35.3 *discussed in* Simonds, *supra*, note 8 at 172-77. Art. 35 affords protection to the environment in its own right. *Cf.* Art. 55 which grounds its protection of the environment in protections for noncombatants. Bothe, *supra* note 34, at 345.

intended or may be expected to cause such damage to the natural environment and thereby prejudice the health or survival of the population.

2. Attacks against the natural environment by way of reprisal are prohibited.[312]

Articles 35 and 55 cover not only deliberate environmental damage but also that which is reasonably foreseeable.[313] The difficulty with Articles 35 and 55 is in interpreting the conjunctive phrase "widespread, long-term, and severe."[314] Moreover, like the Fourth Geneva Convention and the Hague Regulations, these articles do not apply to air and sea warfare not connected to war on land and they do not apply to conflicts of a non-international character.[315] Protocol I is also criticized for its lack of "workable standard[s]" for military commanders,[316] and because it is too restrictive of militarily necessary destruction and thus renders military commanders susceptible to prosecution for merely incidental damage.[317]

Protocol I, which entered into force in 1978 and was recently ratified by Great Britain,[318] appears destined for near universal acceptance and recognition as customary international law.[319]

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[312]Protocol I, *supra* note 271, art. 55. *See discussion in* Carruthers, *supra* note 64, at 47-48 *and* Gasser, *supra* note 138, at 638. A violation of Art. 55 is a grave breach under Article 85. Baker, *supra*, note 10 at 378-79.

[313]Bothe, *supra* note 34, at 345. "Article 55 reinforces the implication of Art. 35 that care must be taken to avoid collateral catastrophic effects on the natural environment resulting from such methods or means of warfare employed for purposes other than causing such effect on the environment." *Id.* at 345-46. The problem is its ambiguity. Almond, *supra* note 34, at 130. These articles "are intended to prohibit extreme environmental damage" not that "normally" incidental to "battlefield damage." Leibler, *supra* note 6, at 111.

[314]Only the element of duration was discussed at any length during the drafting phase; no further explanation or definition was agreed to. Bothe, *supra* note 34, at 346. "It appeared to be a widely shared assumption that battlefield damage incidental to conventional warfares would not normally be proscribed by this provision." *Id.* "[Articles 35.3 and 55] would affect such unconventional means of warfare as the massive use of herbicides or chemical agents . . . ." *Id.* at 348. Some sentiment was expressed that the terms widespread, long-term, and severe should be interpreted independently of the similar but disjunctive terms in the ENMOD Treaty. *Id.* at 347-48. Is the standard too high to serve a preventative function? *See* Simonds, *supra* note 8, at 174-75.

[315]Carruthers, *supra* note 64, at 47; Simonds, *supra* note 8, at 171, 184-85. "Neither of these two bodies of law [the law of war and environmental war] adequately address environmental damage to communal areas in non-international armed conflicts or in warfare at sea or in the air." Simonds, *supra* note 8, at 187. Where the conflict occurs, e.g., occupied territory, neutral territory, or at sea, has a significant bearing on what law applies. *Id.* at 170.

[316]Sharp, *supra* note 26, at 16. "The chief faults of these provisions are their failure to establish a dividing line between military and civilian objects and their failure to firmly prohibit a certain level of destruction. These provisions thus do not provide armed forces or reviewing tribunals with clear rules of conduct." Simonds, *supra* note 8, at 176.

[317]Caggiano, *supra* note 2, at 491.

[318]*See* Robert S. Tully, *Additional Protocol I to the Geneva Conventions of 1949: An Analysis of the Continuing Validity of United States Military Objections to Ratification in the Post-Cold War Era* 142 (1995) (unpublished LL.M. thesis, The George Washington University). Marine Lieutenant Colonel Tully argues that the military

As the Protocol already enjoys wide acceptance as conventional law among many nations including such large and powerful nations as China, Germany, and Russia, the "widespread, long-term and severe" standard already regulates relations among the majority of nations.[320] The U.S. position is that these articles are "too broad and ambiguous" to constitute customary international law.[321]

Uncertain is whether breaches of Articles 35 or 55 are "grave breaches" under article 85 which will give rise to criminal responsibility.[322] A grave breach under Article 85 is a willful violation of the Protocol which causes "death or serious injury to body or health."[323] Grave breaches constitute war crimes.[324] Collateral environmental damage which is not willfully caused and which results only in minor health effects would thus not be a grave breach.

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reasons for U.S. objections to the protocol have changed fundamentally since the collapse of the former Soviet Union. *Id.* at 141. Moreover, the objections as to Articles 35 and 55 are limited. Baker, *supra* note 10, at 382. Thus, the U.S. should reconsider its position vis-à-vis ratification as Great Britain recently did. *See also* Gasser, *supra* note 153.

[319]Gupta, *supra* note 9, at 260 ("[Articles 35 and 55] have been accepted as incorporated into customary international law.") (citing works by Professor Almond and Ms. Okordudu-Fubara). *Accord* Sharp, *supra* note 26, at 18, 43. *Cf.* Leibler, *supra* note 6, at 112 ("(I)t is difficult to understand how a provision could represent a norm of customary international law when there is such extensive disagreement about the meaning of its central elements."); *and* Simonds, *supra* note 8, at 177 ("(C)ommentators treat articles 35.3 and 55 as 'progressive development' rather than as customary international law."). *But cf.* "The Protocols are an integral part of the Geneva law, the most established body of wartime rules. The Protocols thus represent the most widely accepted and direct path to protecting the environment during war." *Id.* at 211.

[320]But consider the following: "When states turn to the use of armed force in their relations, it is evident that they believe that there is no other remedy or measure available to resolve their disputes or claims. Once they have turned to the use of force it is also evident that they will not be concerned with protecting the environment, and for this reason, the provisions in Protocol I are hortatory." Almond, *supra* note 34, at 136.

[321]Simonds, *supra* note 8, at 177; Roberts, *supra* note 50, at 22-25.

[322]Baker, *supra* note 10, at 378-79; Leibler, *supra* note 6, at 116; Simonds, *supra* note 8, at 200. The consequences of breach under this convention, a creature of humanitarian law, compared to the consequences of breach under the ENMOD Treaty, a creature of international environmental law, are significant. Leibler, *supra* note 6, at 110. Professor Falk contends that violations of these articles are not grave breaches and thus cannot be punished as war crimes. Falk, *supra* note 20, at 93. The ICRC position is that they are grave breaches. *See* Roach, *supra* note 13, at 4.

[323]Protocol I, *supra* note 271, art. 85.3, 85.4. Environmental damage is not listed.

[324]Protocol I, *supra* note 271, art. 85.5. "States shall repress grave breaches." *Id.* art. 86.1.

C. *International Environmental Law*

International environmental law is a discipline that barely existed a mere quarter century ago. Beginning with the tentative enunciation by an arbitral tribunal of state responsibility for transboundary pollution in *The Trail Smelter Case*[325] and accelerating rapidly after the 1972 Stockholm Declaration,[326] international environmental law is now the subject of dozens of conventions, declarations of leading international organizations, and codification efforts.[327] Environmental protection has been institutionalized in some way into nearly every political system.[328] Its aspirational consensus is represented by the twenty-seven points of the 1992 Rio Declaration.[329]

Like domestic environmental law, international environmental law is crisis-driven and fear-induced.[330] Nothing spurs the growth of law like disaster, and in the last three decades the global environment experienced one highly-publicized disaster after another.[331] Human health threats of enormous urgency, from toxic waste, to foul air and burning rivers, and many, many more, brought environmental law center stage, part of a worldwide "political awakening."[332] Environmental law became in a very short time one of the major fields of international law.[333] Some argue that customary international environmental law already recognizes a duty to protect the environment from hostile modification and from "devastating effects of modern warfare.[334]

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[325]The Trail Smelter Case (U.S. v. Can.) 3 REP. INTL ARB. AWARDS, 1905 (1949).
[326]*See* Gormley, *supra* note 23, at 98.
[327]David A. Wirth, *A Matchmaker's Challenge: Marrying International Law and American Environmental Law*, 32 VA. J. INTL L. 377, 381-86 (1992). Stimulated by criticism of environmental practices during the Vietnam War, international law has begun to reverse the "virtual environmental unconsciousness" in the law of armed conflict. Falk, *supra* note 20, at 86.
[328]Harvard Law Review, *supra* note 100, at 1488-89.
[329]Rio Declaration, *supra* note 89.
[330]*See* ARNOLD W. REITZE, Jr., AIR POLLUTION LAW 29 (1995); Harvard Law Review, *supra*, note 100 at 1487-88.
[331]A partial list of the best known and most devastating man-made disasters includes the Bhopal cyanide release (1984), the Chernobyl release of radioactivity (1986), the Sandoz fire (Rhine River chemical spill) (1986), and the EXXON VALDEZ spill (1989). McClymonds, *supra* note 4, at 585.
[332]Harvard Law Review, *supra* note 100, at 1487.
[333]Wirth, *supra* note 327, at 377-79.
[334]McClymonds, *supra* note 4, at 626. Characterized by one commentator as "the International Law of Environmental Protection," customary international law is said to include: state responsibility for transboundary pollution; the obligation not to use one's territory in a manner harmful to other states (the *sic utere* principle); pollution of another country may constitute "ecological aggression"; the right of an injured state to seek

For all its advances, however, international law remains handicapped by lack of enforcement, attributed by one commentator to the "empty abstraction" of the doctrine of state liability.[335]

1. State Responsibility.

States are responsible for their actions which result in environmental damage to other states.[336] The liability is civil and, in cases of "massive pollution," may be criminal as well.[337] Reparations are the standard civil remedy.[338] The concept is based on protection of the interests of states, not global interests or the environment as such.[339] State responsibility is adjudicated either by an international tribunal or by decision of the U.N. Security Council.[340]

State responsibility continues to apply during armed conflict.[341] States may invoke distress and necessity as a defense.[342] Self-defense[343] is different; it is not a defense to

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reparations: the right to stop harmful pollution by means of economic sanctions and reprisals where appropriate; the right to pollute *res communes* is "not unfettered"; *res nullius* is irrelevant, i.e., states must consider the assimilative capacity of a medium when introducing a pollutant; and, special sensitivity is required in regard to the natural and cultural heritage of other states. Schafer, *supra* note 24, at 299-300.

[335]Harvard Law Review, *supra* note 100, at 1498-1504.

[336]Almond, *supra* note 34, at 160. "[A] state may not engage in or approve of activities which present such grave threats to the environment that human life is likely to be imperiled, and must take 'reasonable steps' to prevent such harm. This duty may depend on the nature and foreseeability of the environmental harm." Schwartz, *supra* note 4, at 8. *See also* Simonds, *supra* note 8, at 191-92. Both Article 3 of the Hague Regulations and Article 91 of Protocol I contain state responsibility provisions. Hague Regulations, *supra* note 268; Protocol I, *supra* note 271.

[337]Almond, *supra* note 34, at 160. Every internationally wrongful act entails international responsibility. An international crime constitutes a serious breach of an international obligation essential for the protection of fundamental interests of the international community. *Id.* Massive air and water pollution may constitute an international crime. Baker, *supra* note 10, at 356. *See also* Articles 19.2 and 19.3 of the International Law Commission, Draft Articles on State Responsibility, *reprinted in* Henkin, *supra* note 24, at 559. *Cf.* Simonds, *supra* note 8, at 201 ("Although the Draft Code does not reflect customary international law, it does suggest possible future directions for liability."). Query whether the U.N. Security Council is willing or able to take effective enforcement action? Henkin, *supra* note 24, at 560. *And see infra* note 346 and accompanying text.

[338]Leibler, *supra* note 6, at 73-74.

[339]*Id.* at 75 ("(O)nly those states which suffer environmental damage will be able to invoke the responsibility of the offending state to make reparation.").

[340]Simonds, *supra* note 8, at 199.

[341]Leibler, *supra* note 6, at 75.

[342]*Id.* at 76.

[343]*See* U.N. CHARTER art. 51.

environmental damage but only a justification for the use of force.[344] Self-defense, however, may be a necessary predicate to distress and necessity.[345]

Environmental damage may constitute unlawful aggression under Article 2(4) of the United Nations Charter.[346] Failure to refrain from the threat or use of force in violation of Article 2(4) will give rise to state responsibility.[347] Acts which constitute "waging a war of aggression" will give rise not only to state responsibility but also to individual criminal responsibility for "crimes against peace."[348]

Historically, acts of a state taken in lawful self-defense did not constitute an "international delinquency, no matter how injurious . . . [they] may actually be to another state."[349] As a result of the *Corfu Channel Case* and the Stockholm Declaration, this "nonliability" "view" is now considered "moribund."[350] The modern trend is toward strict liability for even lawfully caused environmental damage.[351]

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[344]Leibler, *supra* note 6, at 75.

[345]*Id.*

[346]U. N. CHARTER art. 2, ¶ 4; *And see* Baker, *supra* note 10, at 356 ("(T)ransboundary environmental damage occurring in war could be argued to have effects similar to the use of force. This is especially true if the damage is deliberately directed against an opponent, but would also apply in cases of collateral damage affecting belligerents, neutrals, or the acting state's own environment."). Article 2(4) "not only corresponds to customary international law," but may also "[belong] to the realm of *jus cogens*." Leibler, *supra* note 6, at 87. Paragraph 16 of U.N. Security Council Resolution 687 (the Gulf War cease-fire resolution) is said to provide additional support for the proposition that environmental damage may constitute an unlawful use of force. *Id.* at 88. The question is one of degree. "Small-scale environmental damage" will not constitute unlawful aggression, while "severe damage" may. *Id.* at 89-90. The "requisite quantum of damage" is unclear, however. *Id.* That environmental damage may constitute unlawful aggression and thus a threat to peace under Chapter VII of the U.N. Charter is important because it potentially invokes the obligation of the Security Council to take military action to redress the breach of peace. *Id.* at 90-92.

[347]Leibler, *supra* note 6, at 87.

[348]*Id.* Crimes against peace, like violations of *jus cogens*, enjoy universal jurisdiction. *Id.* at 92.

[349]Okordudu-Fubara, *supra* note 2, at 207 (quoting Oppenheim). "If environmental damage is inflicted by a state in the course of a lawful use of force, then it cannot amount to a prohibited 'use of force,' a 'breach of peace,' or a 'crime against peace.' In such circumstances, even the most severe acts of deliberate environmental destruction will escape liability under the *jus ad bellum* regime." Leibler, *supra* note 6, at 95. Note that that part of the law of armed conflict which pertains to the use of force during armed conflict (*jus in bello*) applies even to armed conflict which is unlawful under the *jus ad bellum*. *Id.* at 96.

[350]Okordudu-Fubara, *supra* note 2, at 208.

[351]*Id.* at 209 (citing the work of the Experts Group on Environmental Laws of the World Commission on Environment and Development).

2. The Stockholm Declaration.

The Stockholm Declaration of 1972 provides:

> Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits life of dignity and well-being.[352]

The Declaration does not apply directly to armed conflict, but it reinforces other protections under customary international law.[353] It implies that war in general is not inherently destructive to the environment, that only weaponry of mass destruction is.[354] As we have seen, however, this notion is outmoded.[355]

3. The Rio Declaration

The Rio Declaration which followed the Stockholm Declaration by 20 years provides:

> Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.[356]

And further:

> The environment and natural resources of people under . . . occupation shall be protected.[357]

The Rio Declaration, which also requires that states give notice of environmentally harmful activities,[358] is said to distinguish between environmental protection in peacetime and environmental protection during armed conflict.[359] It is feared that Principle 2 of the Rio Declaration which reiterates Principle 21 of the Stockholm Declaration, may lead to overwhelming liability for all parties to a conflict.[360] The operative language is:

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[352]Stockholm Declaration, Principle 1, *reprinted in* Schwartz, *supra* note 4, at 10.
[353]Falk, *supra* note 20, at 87 (Principle 21).
[354]*Id.* (Principle 26) ("Man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction.").
[355]*See supra* part II.A.
[356]Rio Declaration, *supra* note 89, Principle 24.
[357]*Id.* (Principle 23).
[358]*Id.* (Principles 18 and 19).
[359]Simonds, *supra* note 8, at 192.
[360]Rio Declaration, *supra* note 89, Principle 2; Simonds, *supra* note 8, at 192.

> States have, in accordance with the Charter of the United Nations and the principles of international law . . . the responsibility to ensure that activities within their jurisdictions *or control* do not cause damage to the environment of other states *or of areas beyond the limits of national jurisdiction* [emphasis added].[361]

Interpreted literally, this language imposes responsibility for environmental damage during armed conflict even when such damage is justified under the law of armed conflict and humanitarian law, and imposes responsibility for incidental damage to *res communes*. Many states are wary of exposing themselves to this type of liability and would therefore object to the recognition of these provisions as customary international law.[362]

4. The World Charter for Nature.

The World Charter for Nature of 1982 is important for several reasons. Perhaps the most important, conceptually, is the recognition in the Charter that mankind's relation to the environment has changed from exploitation to conservation. Article III of the Charter provides that "(a)ll areas of the earth, both land and sea, shall be subject to these principles of conservation; special protection shall be given to unique areas, to representative samples of all the different types of ecosystems and to the habitats of rare or endangered species."[363] Article V provides: "Nature shall be secured against degradation caused by warfare and other hostilities."[364] Article XX states: "Military activities damaging to nature shall be avoided."[365]

The Charter, adopted as U.N. General Assembly Resolution 37/17, is "not inherently binding," but does "constitute further evidence supporting the applicability of the general principle

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[361]Rio Declaration, *supra* note 89, Principle 21. *N.B.* Section 601 of the Restatement (Third) of the Foreign Relations Law of the United States is to the same effect. RESTATEMENT (THIRD) OF FOREIGN RELATIONS LAW OF THE UNITED STATES § 601.

[362]*See supra* parts II.A.1 and IV.A.3.

[363]World Charter for Nature, *supra* note 90, art. 3. Conservation of the marine environment is prescribed by Articles 192 and 193 of the Law of the Sea Convention. U.N. Convention on the Law of the Sea, 21 I.L.M. 1261 (1982). Many other conservation-oriented treaties exist. *See, e.g.,* Harlow, *supra* note 48, at 8.

[364]World Charter for Nature, *supra* note 90, art. 5. *See also* ARTHUR H. WESTING, CULTURAL NORMS, WAR AND THE ENVIRONMENT app. 3 (1988).

[365]World Charter for Nature, *supra* note 90, art. 20.

in wartime."[366] The only state in active opposition to the Charter was the United States, one of its original proponents.[367]

The normative assertions of the Charter, though not themselves sufficient, build support for strengthening international law through "a comprehensive regulatory framework which is the outcome of a multinational law-making process."[368] One principle of customary international law that may be developing from the Charter is that "nature is no longer fair game in mankind's conflicts."[369] This hardly provides greater specificity, but it is normatively significant.

5. The ENMOD Treaty

The ENMOD Treaty of 1977, which arose out of the U.S. use of mechanical and chemical defoliants and cloud-seeding techniques in Vietnam,[370] and was concluded shortly before Protocol I, proscribes hostile use of environmental modification techniques having "widespread, long-lasting *or* severe [emphasis added]" effects.[371] The treaty does not protect the environment from damage or destruction as such,[372] rather it places limitations on its hostile (but not peaceable) use.[373] Binding on the signatories only, the ENMOD Treaty is not considered customary international law.[374]

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[366]Leibler, *supra* note 6, at 75.
[367]Falk, *supra* note 20, at 87.
[368]*Id.*
[369]Sharp, *supra* note 26, at 29.
[370]Caggiano, *supra* note 2, at 488. Environmental modification was "widely perceived" at the time as a weapon whose use would increase as technology improved. Leibler, *supra* note 6, at 93-94. However, as with environmental modification for hostile purposes generally, the U.S. efforts in Indochina were largely ineffectual. Westing, *supra* note 2, at 5. Query, if environmental modification is ineffectual will it not frequently fail the tests of military necessity, proportionality, and discrimination? *See supra* part V.A.1.
[371]ENMOD Treaty, *supra* note 71, art. 1.1. In full, article 1.1 provides: "Each State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party." *Id.* Note the disjunctive use of "or" vice "and" as in Protocol I, arts. 35, 55. *See* Simonds, *supra* note 8, at 185-87 *and* Caggiano, *supra* note 2, at 488-91.
[372]Sharp, *supra* note 26, at 20; Gupta, *supra* note 9, at 262.
[373]Simonds, *supra*, note 8 at 187. Hostile environmental modification below the levels of widespread, long-lasting or severe is not prohibited. Caggiano, *supra* note 2, at 489. Non-hostile modification even above the threshold is also not prohibited. *Id.* The term "environmental warfare" has been used to describe hostile environmental modification, a form of unconventional warfare. Okordudu-Fubara, *supra* note 2, at 144.
[374]Morris, *supra* note 5, at 775-77; Gupta, *supra* note 9, at 262.

The treaty is criticized because it is vague,[375] it prohibits only that which is militarily unattractive[376] and because its enforcement mechanism - complaint to the U.N. Security Council via a Consultative Committee of Experts - is unwieldy.[377] Some suggest that the treaty avoids the more fundamental question whether "any hostile modification of the environment or any amount of damage caused by such modification should be tolerated at all."[378]

Part VI
How Can Existing Law Be Strengthened And Enforced?

In this part we explore how and why military force might be used to deter, prevent or punish unjustified environmental damage during armed conflict and thereby strengthen existing law. We will see how the U.S. Armed Forces have assimilated an environmental ethic[379] and how U.S. foreign policy has institutionalized environmental values by embracing the concept of environmental security. We will also see how armed forces are well-suited and well-situated to take timely action to protect the environment during armed conflict. Having concluded that armed forces are capable of effective environmental protection during armed conflict, we will determine the threshold or necessary preconditions for the use of armed force. We will describe how the Protocol I standard of widespread, long-term, and severe might be utilized and how the ENMOD Treaty definitions of these terms might be adapted for customary use.

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[375]Widespread is defined as "encompassing an area on the scale of several hundred square kilometers." Long-lasting is defined as "a period of months, or approximately a season." Severe is defined as "involving serious or significant disruption or harm to human life, natural or economic resources or other assets." Simonds, *supra* note 8, at 186. Recall that these definitions are strictly limited to this treaty. *Id. And see* Leibler, *supra* note 6, at 110.

[376]Caggiano, *supra* note 2, at 489 n.71. But since "most wartime environmental damage results from attacks against enemy forces and not from attempts to modify the environment, the treaty is not likely to have much practical application. Most of the prohibited techniques are militarily unrealistic anyway" Simonds, *supra* note 8, at 187.

[377]Morris, *supra* note 5, at 776 n.4; Okordudu-Fubara, *supra* note 2, at 210-11.

[378]Josef Goldblat, *The Environmental Modification Convention of 1977: An Analysis, in* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL 57 (Arthur H. Westing ed., 1984).

[379]In this context, "environmental ethic" means a policy of self-restraint against environmental destruction. Diederich, *supra* note 10, at 156.

A. *Why Military Force*

> *Modern combat with nuclear weapons, persistent toxic chemicals and long lived contamination such as dioxins, and unexploded ordinances* [sic] *can have impacts over generations. Many of us have seen the characterization of "sick humor" of the lone soldier standing in the midst of Armageddon declaring, "We won." (W)e have reached the point in our war fighting capability where we must consider the consequences as we develop and use . . . sophisticated weapons. We must also be very cognizant of the abilities of our enemies because as was proven in* [the Athenian desecration of the Theban temple at] *Delium* [in 424 B.C.], *not everyone follows the rules.*[380]

1. U.S. Armed Forces Have Assimilated an Environmental Ethic.

Military forces are the instrument of government's first duty, the protection of its lands and citizens. Known perhaps more infamously for their aggressive rather than defensive use, military forces have evolved as armed conflict has evolved, as have expectations concerning the justifiable use of armed force. The history of war (and the law of war) is the history of society's values, values sooner-or-later imprinted on the military establishment.[381]

The Clean Air and Water Acts, the Endangered Species and Marine Mammal Protection Acts, the National Environmental Policy Act, and a host of other statutes impose environmental obligations on the U.S. Armed Forces,[382] as do a number of international treaties and the laws of the many nations where U.S. Armed Forces are forward deployed.[383] The Department of Defense with its millions of employees is a major landholder which engages in a multitude of military, industrial, and commercial activities that make it one of the largest environmentally

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[380]Finch, *supra* note 36, at 3. An unexploded ordinance is a lawyer's time-bomb.

[381]Diederich, *supra* note 10, at 156.

[382]*See, e.g.*, 32 C.F.R. pt. 188 (Environmental Effects in the United States of DOD Actions). Recall that wartime exceptions may pertain to peacetime statutes. *See supra* note 123. While it is beyond the scope of this paper to treat the issue in any detail, one should note that domestic environmental law impacts military training and operations to a far greater extent than does international law. Although some domestic environmental statutes have war or national emergency exceptions, and certain others speak even more vaguely of emergency situations, for combat operations abroad the Department of Defense does not routinely request the President to grant statutory relief. The strictures of compliance with domestic environmental law during armed conflict may thus place U.S. Armed Forces at a disadvantage when facing a foe who is not similarly constrained. The capability, mobility, and flexibility of the Armed Forces cannot be properly assessed without understanding the compound effects of domestic *and* international law.

[383]*See, e.g.*, Exec. Order No. 12,114, *cited in* Environmental Defense Fund *v.* Massey, 986 F.2d 528 (D.C. Cir. 1993). *Cf.* NEPA Coalition of Japan *v.* Aspin, 837 F.Supp. 466 (D. D.C. 1993).

regulated institutions in the world. The U.S. Armed Forces find themselves, their activities, and their installations monitored and policed by a vast array of international, foreign, federal, and state agencies, authorities, and commissions. In short, the military services have gone "green."

Part of the "greening" of the military services is the introduction of an environmental ethic, a sense of stewardship for natural resources and the environment.[384] In simple ways such as instituting recycling programs, to more complex undertakings like structuring militarily useful training exercises to avoid taking endangered species and marine mammals,[385] the U.S. Armed Forces have taken up the environmental cause with characteristic military efficiency.[386] Moreover, the environmental impact of military operations and armed conflict is a matter with which the services are already concerned, as evidenced *inter alia* by last September's Naval War College Symposium.

2. U.S. Foreign Policy Has Institutionalized Environmental Values.

During a recent visit to Brazil's rain forests, Secretary of State Warren Christopher remarked: "(T)he environment is essential to the health, security and prosperity of not only the American people but people all around the world."[387] In a February 1996 memo to senior State Department aides Secretary Christopher laid out the policy of the Clinton Administration relative to environmental security, placing the environment near the top of U.S. national security interests.[388] The national security strategy, *A National Security Strategy of Engagement and Enlargement* (February 1995), states:

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[384]*See, e.g.*, Robert E. Linhard, Protection of the Environment During Armed Conflict and Other Military Operations 1-2 (Undated) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI).

[385]*Id.* at 3 (protection of the red cockaded woodpecker from tank training at Ft. Bragg, NC).

[386]*See, e.g., Navy* Environmental Manual, *supra* note 170, ¶ 3 ("The Navy is committed to operating in a manner compatible with the environment. National defense and environmental protection are and must continue to be compatible goals. Therefore, an important part of the Navy's mission is to prevent pollution, protect the environment, and protect natural, historic, and cultural resources.").

[387]Thomas A. Lippman, *On Amazon, Christopher Stands Up for Environment*, WASH. POST, Mar. 5, 1996, at A9.

[388]*Id.* The posture is not merely a Democratic (vice Republican) one. During the Bush Administration, Secretary of State James Baker also espoused the importance of environmental security in U.S. foreign policy.

> Transnational phenomena such as terrorism, narcotics trafficking, *environmental degradation, natural resource depletion*, rapid population growth and refugee flows also have security implications for both present and long-term American policy. In addition, an emerging class of transnational environmental issues are increasingly affecting international stability and consequently will present new challenges to U.S. strategy [emphasis added].[389]

This new concept - environmental security - is thus an inextricable aspect of national security.[390] It underscores how even in peacetime environmental degradation can undermine the stability and security of individual nations, regions, and the larger world community.[391] As a nation we must respond to this threat with a combined political, military, and economic approach.[392]

As an instrument of U.S. foreign policy, the Armed Forces must be environmentally-conscious and compliant not only in their day-to-day non-combat operations, they must also "externalize" environmental awareness, that is, make the environment part of their strategic, operational, and tactical thinking and planning for armed conflict.[393]

Michael J. Kane. *Promoting Political Rights to Protect the Environment,* 18 YALE J. INTL L. 389, 410-11 (1992). This article is one of the series arising from the April 1992 Yale symposium entitled "Earth Rights and Responsibilities: Human Rights and Environmental Protection." "(S)ources of instability in the economic, social, humanitarian and ecological fields have become threats to peace and security." Baker, *supra* note 10, at 356.

[389]A National Security Strategy of Engagement and Enlargement 1 (The White House Feb. 1995). *And see* Almond, *supra* note 43, at 319.

[390]"In all cases, the nature of our response [to external threats] must depend on what best serves our own long-term national interests. Those interests are ultimately defined by our security requirements. Such requirements. start with our physical defense and economic well-being. They also include environmental security as well as the security of values achieved through the expansion of the community of democratic nations." National Security Strategy, *supra* note 389, at 7. "(S)ecurity, even in the traditional sense, can be ensured only if security in the environmental sense is emphasized. Brunneé, *supra* note 17, at 1742.

[391]National Security Strategy, *supra* note 389, at 18. The concept has two elements: maintaining ecological balance and preventing conflict. Brunneé, *supra* note 17, at 1742.

[392]National Security Strategy, *supra* note 389, at 33. "The Clinton administration plans to allocate hundreds of millions of dollars to international environmental programs in 1997, officials said, even though Congress has reduced funds for diplomatic activities and foreign aid. U.S. diplomats at key embassies will be reassigned to natural resource and environment issues." Thomas W. Lippman, *Christopher Puts Environment High on Diplomatic Agenda: Abuse of Natural Resources Imperils U.S. Interests, Secretary of State Says,* WASH. POST, Apr. 15, 1996, at A10. "I have great confidence [Secretary Christopher said in an interview] that as we move into the 21st century, the nexus between security and the environment will become even more apparent." *Id.* Cooperation rather than competition should be the focus for environmental issues. Brunneé, *supra* note 17, at 1742. *And see infra* note 418 and accompanying text.

[393]*See* Harry D. Croft, *A New Element of National Security: Military Forces in Environmental Protection*, 1993 EXECUTIVE RESEARCH PROJECT A105 4, 8-9, 11 (Industrial College of the Armed Forces 1993). *And see supra* part

3. Armed Forces Are Best Suited and Best Situated to Take Timely Action During Armed Conflict.

It is a far cry from domestic environmental law compliance to enforcement of the law pertaining to environmental protection during armed conflict. Should Army Rangers be dropped into the Amazon to stop the burning of the rainforests because of the potential harm to our environmental security? Should the Air Force strike coal-fired electric power plants in Bosnia-Herzegovina to stop the emission of pollutants harmful to U.N. peacekeeping forces? Should the Navy sink illegal whaling ships of former enemies? The very suggestion of military "enforcement" of international law evokes a specter of these and other potential excesses.[394]

The U.S. Armed Forces are not law enforcement agencies;[395] they are organized, trained, and equipped for successful combat operations. But more and more, military forces are called upon to maintain order and stability by limited means and measures, such as separation of warring factions until diplomatic solutions can be achieved. In this limited capacity, commonly placed under the rubric of peacekeeping, the military's objective is a peaceful political solution, not a military one. Deterrence, not swift and decisive combat action is the *modus operandi*.

No effective mechanism for the prevention of unjustified environmental damage during armed conflict can be constructed that does not include the major protagonists, the combatant forces themselves. Environmental destruction caused by hostile armed forces is best deterred, prevented, and punished by other armed forces. In this context, corresponding force is the most credible remedy.

In theaters of armed conflict, a vacuum of civil authority frequently exists, a vacuum created by the disruption of governmental institutions and the interruption of normal legal

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III.B.1.

[394]*N.B.* Two of the three examples (Army and Navy) do not involve immediate armed conflict. The third example (Air Force) involves armed conflict in which the U.S. is involved only as a peacekeeper, now under the Dayton peace accords.

[395]The Posse Comitatus Act strictly limits use of the Armed Forces in domestic law enforcement: "Whoever, except in cases and under circumstances expressly authorized by the Constitution or Act of Congress, willfully uses any part of the Army or the Air Force as a posse comitatus or otherwise to execute the laws shall be fined under this title or imprisoned not more than two years, or both." 18 U.S.C. § 1385.

processes. The military is often the only institution capable of filling this vacuum, of addressing the problem of environmental damage at the time and place it is most likely to occur. However effective diplomatic and juridical remedies may be, they are *ex post facto*. A more immediate capability is needed.

Another beneficial effect of the use of military force to deter, prevent, or punish unjustified environmental damage during armed conflict is the internalization of the costs of environmental damage to the responsible state.[396] The high price a state may have to pay for unjustified environmental damage may itself be a credible deterrent. A swift and sure military response to unjustified environmental damage may dissuade the responsible state and other states from similar actions in the future. The high cost of violation may give pause to reconsider compliance.

B. *The Threshold for Use of Armed Force*

1. The Protocol I Standard: Widespread, Long-term, and Severe.

The Protocol I "widespread, long-term and severe" standard, despite its shortcomings, is the best available guideline.[397] Not only does it already enjoy broad-based acceptance as conventional law, it correlates well with the principle of self-defense under Article 51 of the United Nations Charter.[398] This is the standard that should be incorporated into military doctrine, both as it relates to intentional and reasonably foreseeable environmental damage which is not justified by military necessity.

Chances are that the standard will be invoked frequently. As one commentator put it:

> An act of environmental warfare of any consequence such that its effects generate any attention nationally, regionally, or globally, would rarely fail to satisfy at least one of the stipulated thresholds of "widespread," "long-lasting," or

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[396]Diederich, *supra* note 10, at 138; Harvard Law Review, *supra* note 100, at 1550. *And see* Rio Declaration *supra* note 89, Principle 16.

[397]*Cf.* Simonds, *supra* note 8, at 211 (use ENMOD Treaty disjunctive standard). *And see supra* note 141.

[398]Article 51 provides: "Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security." U.N. CHARTER art. 51.

"severe" and would probably satisfy two or all three requirements as demonstrated by the Persian Gulf environmental warfare.[399]

Admittedly, it will be difficult to evaluate these criteria during actual combat when scientific environmental assessment may be impossible or prohibitively impractical.

The obvious examples are the easy ones to evaluate. The hardest are those that while foreseeable were unintentional. It is in these cases that the vagaries of the current thresholds are most pronounced. Only over time will these ambiguities be clarified by state practice. As norms pertaining to environmental protection during armed conflict evolve and the practices of armed forces change, the parameters of these thresholds will become clearer and give better guidance to states and military commanders.

The Protocol I standard must be interpreted in conjunction with the principle of military necessity and the other relevant provisions of the law of armed conflict, humanitarian law, and international environmental law. The scale of environmental damage is important (whether it meets the threshold); the justification for it is equally so. Protocol I thus cannot stand on its own. It offers a workable standard but ignores the underlying justification for the use of force.

As noted previously, the law differs depending on the nature of the conflict, where it occurs, and who is affected by the action in question.[400] The Protocol I standard should also be applied to non-international conflicts, such as that which occurred in the former Yugoslavia, and to air and sea warfare.[401]

2. The ENMOD Treaty Definitions.

Although the definitions of "widespread, long-lasting, or severe" accompanying the ENMOD Treaty are intended only for the purposes of that treaty, they do offer a basis for construing the terms "widespread, long-term, and severe" under Protocol I, not in the sense of

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[399]Okordudu-Fubara, *supra* note 2, at 181. *N.B.* This is the ENMOD Treaty disjunctive standard, but the same will often be true of the Protocol I conjunctive standard.
[400]*See supra* note 315 and accompanying text.
[401]Simonds, *supra* note 8, at 213-14. The San Remo Manual is one initiative along these lines. *See supra* note 159.

precedent or binding authority, but in the nature of relevant facts. Thus, certain environmental damage whose effects will last considerably less than a season, e.g., a few weeks, may still be found to be long-term. For instance, were a chemical plant like the Union Carbide plant in Bhopal, India destroyed intentionally during war for no other purpose than ostensibly to terrorize the civilian population, the fatal effects of the release of methyl-isocyanate might be considered "long-term." Even though the gas will dissipate quickly, the resulting health effects (fatalities and permanent injuries) will endure for years.[402]

C. *Employment of Military Forces*

1. Deterrence.

In this section we will look at how armed force may be used to deter unjustified environmental damage during armed conflict. As we have seen, the law of armed conflict, humanitarian law, and international environmental law provide a basis to protect the environment from certain unjustified environmental damage during armed conflict.[403] We have also seen that armed force can be used as an enforcement mechanism.[404] How is this to be done? Alternative approaches must be developed to address the situations where the United States[405] is already a combatant, seeks to intervene in an on-going or threatened conflict, or participates in a peacekeeping operation under the auspices of the United Nations.

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[402]Lingering groundwater contamination outside the former Bhopal Union Carbide plant continues to effect the health of the remaining inhabitants and their livestock as well as crop yields. Kenneth J. Cooper, *Slums Sprawl in Shadow of Bhopal Gas Leak: Indians Eke Out Living 12 Years After Disaster Despite Suspected Contamination of Water, Soil,* WASH. POST, June 27, 1996, at A19.

[403]*See supra* part V.

[404]*See supra* part VI.A.

[405]The United States was selected for illustrative purposes because the U.S. Armed Forces are uniquely qualified to take a leading role in developing this area of the law. However, the illustrations and conclusions would apply equally to the armed forces of any other country or alliance, e.g., NATO. *See* Dieter Fleck, Protection of the Environment During Armed Conflict and Other Military Operations: The Way Ahead 7-8 (Undated) (paper presented to the September 1995 Naval War College Symposium entitled "The Protection of the Environment During Armed Conflict and Other Military Operations") (on file with Oceans Law and Policy Dep't, Center for Naval Warfare Studies, U.S. Naval War College, Newport, RI).

Whatever cautions may be raised against the use of armed force as a mechanism for enforcement of the law pertaining to environmental protection during armed conflict, few enforcement tools are more immediate, direct, and compelling than armed force. Fortunately, self-restraint characterizes the most powerful nations' use of military force better than unbridled aggression. Within this context a legal regime permitting properly limited, tailored uses of force for environmental protection is reasonable. No remedy is apt for every situation, however, which is no less true for the use of armed force than it is for non-forcible remedies.

Armed force may be used to deter environmental damage during armed conflict in a variety of ways. They include monitoring, patrolling, clean-up, and logistical support[406] Monitoring may be done through existing intelligence-gathering capability including space-based and aerial reconnaissance. Patrolling, clean-up, and logistical support may be performed during active hostilities as circumstances may allow and also in connection with peacekeeping activities.[407]

The U.S. Armed Forces and those of many other nations have been engaged in numerous peacekeeping operations[408] around the globe. This trend should not only continue but expand, if the assertiveness of the United Nations in the Gulf War and Bosnia-Herzegovina are any indication. Typical of peacekeeping operations, the peacekeeping contingent is small, multinational, and lightly armed. Its posture is passive, its positions largely static, and its operational orders and rules of engagement emphasize self-restraint. In short, the contingent is

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[406]Croft, *supra* note 393, at 14.

[407]For example, the presence of U.S. forces involved in clean-up operations may deter an unlawful aggressor from further environmental damage. Attack upon the U.S. forces would risk unwise escalation. By participating in the clean-up the U.S. demonstrates its resolve to preclude further unjustified environmental damage. Another benefit of "greenkeeping" is that the presence of neutral forces whose mission includes environmental protection may diminish the prospects of conflict over access to what unspoiled natural resources remain.

[408]Note the distinction between passive and active peacekeeping. In the former case, largely one of monitoring and reporting, the role of the peacekeepers is very limited and, correspondingly, the size and composition of the force is small and defensive only. In the latter case, the size and composition of the force is larger and includes offensive capability as might be necessary to ensure that prescribed humanitarian functions could be carried out. In either case the objective *and* the mission are political (vice military) and conflict avoidance supplants confrontation as the mode of operations.

typically not capable of responding with force to instances serious environmental damage by another belligerent force.

Consistent with its peacekeeping mandate, however, a peacekeeping contingent can play a credible role by monitoring and reporting environmental damage. Grave breaches of the law pertaining to environmental protection during armed conflict should be among the matters to be monitored and reported.[409] Adverse publicity and condemnation may be useful in deterring and stopping widespread, long-term, and severe environmental damage, as they have been with some violations of international law such as human rights abuses. When the contingent does possess sufficient capability and capacity to employ force against the perpetrator, then force (tailored to the military and political circumstances) should be used to deter and, if necessary, prevent, and punish grave breaches.

"Greenkeeping" may be used to describe the active or passive use of armed forces to protect the environment from widespread, long-term, and severe environmental harm during armed conflict. In some respects the environmental equivalent of peacekeeping, "greenkeeping" is a short-hand, if somewhat sloganeer, means of describing a new role for armed forces, one for which the U.S. Armed Forces are especially well-suited and are partly prepared and equipped. For example, the services are already versed in the handling of hazardous wastes and in pollution abatement.[410]

"Greenkeeping" looks to a future in which the scale of armed conflict may be lower than in the World Wars of this century but the adverse impact on the environment may be disproportionately greater not because of any single conflict alone but because of the compound and cumulative effect of environmental degradation throughout the Industrial Age. "Greenkeeping" builds on the "precautionary principle"[411] and on the principles of limitation and

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[409] *See supra* part V.B.2.

[410] *See, e.g.*, Navy Environmental Manual, *supra* note 170, chs. 10, 19 (Oil and Hazardous Substances Contingency Planning; Environmental Compliance Afloat).

[411] Hickey & Walker, *supra* note 114, at 426-29.

cooperation. "Greenkeeping" recognizes the intricate interdependence of the environmental security of the international community and mutual dependence on our common environment.

2. Prevention.

In this section we will look at pre-emption and intervention. The principle of anticipatory self-defense[412] does not require that an imminent, hostile attack be absorbed, rather it may be pre-empted and the reasonably foreseeable harm therefrom prevented. Similarly, grave breaches of the law pertaining to environmental protection during armed conflict should be pre-empted, and unjustified environmental damage thereby prevented, when it can be done consistent with lawful self-defense under Article 51 of the U.N. Charter. To suffer the environment to absorb irreversible damage for no lawful purpose is itself patently unwise and unjustified.

Thus, pre-emption of an attack intended to cause an eruption of the active volcano near the NATO southern headquarters outside Naples, Italy, for example, would undoubtedly be legally justified as a reasonable exercise of anticipatory self-defense.[413] Pre-emption would apply not only in this type of situation but also to an on-going conflict. Pre-emption may also be a basis for intervention.

Use of military force to protect the environment depends mainly on two factors: the potential for conflict and the degree of impact on the environment.[414] As the degree of impact on the environment and the potential for conflict increase, so does the justification for the use of armed force.[415] This calculus should be added to the factors considered when deciding to use force.[416]

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[412]Leibler, *supra* note 6, at 95-96.

[413]In this situation, the justification for the use of force to prevent environmental damage overlaps the justification for protection of the military target (AFSOUTH headquarters).

[414]Croft, *supra* note 393, at 17-18.

[415]*Id.* at 17-19. Potential for conflict depends on proximity, the identity of the affected parties, and intent (accidental v. intentional acts). Degree of impact depends on duration, the nature of the impact, and extent of mortality. Thus, where the potential for conflict and degree of impact are slight, monitoring only would be appropriate. When these factors increase, diplomacy may become appropriate. When these factors reach high levels, military intervention may be required.

[416]These factors, known collectively as the "Weinberger Doctrine," are intended to ensure that force is used only

States are reluctant to intervene unilaterally.[417] As a practical matter, states rarely intervene in armed conflicts without the imprimatur of the United Nations or of a regional collective security body such as NATO, unless by invitation of one of the parties (where a credible case can be made for the exercise of self-defense) or, in the case of the United States, by operation of a hemispheric zone of influence, i.e., the Monroe Doctrine. So, for example, when the United States intervened to halt Iraqi aggression against Kuwait it did so by invitation of Saudi Arabia and Kuwait, under the auspices of the United Nations, and in concert with a broad-based coalition. Forward-thinking states know that environmental security and protection of the global environment during armed conflict require cooperation.[418]

Had Iraq done no more than set bordering oil wells afire and released a massive oil spill into the Persian Gulf, would intervention have been warranted solely to punish unjustified environmental damage? And what of the use of chemical weapons in the 1980's in the Iran-Iraq War and in Afghanistan? Surely the widespread use of long-lasting toxins which caused untold deaths and injuries was sufficiently severe for intervention.[419] And what about environmental damage during internal conflicts such as those in Somalia and Rwanda? Legal justification notwithstanding, how could an American president convince the American public in any of these cases of the need to give American lives in the defense of remote ecosystems?[420]

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when it is the national interest to do so and only for militarily achievable objectives. "(T)he 'just war doctrine' modernized by former Secretary of Defense Weinberger . . . [provides] moral content to the decisions to commit United States military forces abroad." Almond, *supra* note 246, at 11.

[417]A "lone avenger" may contribute more to international chaos than alleviate it. *See* Weil, *supra* note 92, at 433 ("In the absence of any judicial channels organized to that end, . . . any state, in the name of higher values as determined by itself, could appoint itself the avenger of the international community. Thus, under the banner of law, chaos and violence would come to reign among states, and international law would turn on and rend itself with the loftiest of intentions.").

[418]*See* Carol A. Petsonk, *Recent Developments In International Organizations*, 5 AM. U.J. INTL L. & POLY 351, 351-52 (1990) ("(E)nvironmental stability [read "security"?] requires cooperation."); *accord* Almond, *supra* note 246, at 8-9. *See also* World Heritage Convention of 1972 art. VI.1 *cited in* STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE, CULTURAL NORMS, WAR AND THE ENVIRONMENT app. 2 (Arthur H. Westing ed., 1988) ("The States Parties to this Convention recognize that [the natural heritage] constitutes a world heritage for whose protection it is the duty of the international community as a whole to co-operate.")

[419]This points up the significance of environmental science to legal analysis. Harvard Law Review, *supra* note 100, at 1529-31.

[420]This illustrates why the power to intervene must remain permissive, not obligatory. Obligatory intervention not

If it is unlawful to target the environment intentionally, it is hard to imagine a case of unjustified environmental damage that did not already implicate the prohibition against aggressive war, itself a basis for intervention, as illustrated in the discussion of pre-emption above. As measured by state practice, the affirmative obligation to punish grave breaches under the Fourth Geneva Convention and Protocol I notwithstanding,[421] a right of intervention does not equate to a compulsion to intervene. Whether intervention is compulsory or discretionary its justification flows from the right of self-defense under the law of armed conflict. A time may come, most easily illustrated by the use of nuclear or biological weapons of mass destruction, that a neutral state, fearing spill-over of the resulting environmental harm (even when the harmful release occurs at long distances) may feel compelled to intervene to prevent or stop such releases from occurring or spreading. One need only recall the far-reaching effects of Chernobyl and the Gulf War.

3. Punishment.

As a combatant, the United States may respond in force to unjustified environmental damage by way of reprisal, not against the environment, but rather against the forces responsible for the grave breach.[422] For example, were oil or other substances hazardous to human health[423] employed in a hostile manner in a theater of operations without justification, military action may be taken to disable or destroy the enemy forces responsible. This form of punishment is addressed not only to the instant damage but also to the enemy's capability and capacity for future environmental damage.

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only increases the danger from a "lone avenger," it also risks the exhaustion of those states with the capability to do so which carries the attendant risk of loss of popular support and governmental resolve for environmental protection.

[421]Fourth Geneva Convention, *supra* note 270, art. 147; *and see supra* note 322 and accompanying text. *N.B.* Under Chapter VII of the U.N. Charter it is the Security Council, not individual states, which is empowered to take "action with respect to threats to the peace, breaches of the peace, and acts of aggression." U.N. CHARTER arts. 39-51.

[422]Protocol I, *supra* note 271, art. 55.2.

[423]*See, e.g.*, CERCLA, *supra* note 123, § 101(14); 42 U.S.C. § 9601(14) ("hazardous substance" defined).

To respond by force in every instance of unjustified environmental damage (intentional or reasonably foreseeable) is unnecessary and may be unwise; armed force is not the only enforcement mechanism. Military action is a final option, not the first resort. It should be rejected as a viable option when it is strategically, operationally, or tactically unsound and does not serve the purposes of environmental protection. Similarly, states cannot be expected to use armed forces to deter, prevent, or punish unjustified environmental damage when to do so would expose its forces to unacceptable risk.

Part VII
Conclusion

> *As the Cold War gives way to the global village, our leadership is needed more than ever because problems that start beyond our borders can quickly become problems within them*[424]

Who could doubt the need to protect the environment from the ravages of war? Anyone who has witnessed the ruin wrought by war cannot help but cry out for the protection of the environment from such calamity. A sure conviction grows from the personal experience of wartime devastation that humankind, along with the Earth's other inhabitants and the environment that we share, are certain casualties if the delicate balances of nature are bent to breaking.[425]

Do We Need A Concention Relative to Protection Of The Environment During Armed Conflict?

As we have seen, war is inherently destructive to the environment. Weapons of mass destruction (nuclear, chemical, and biological), conventional weapons ("smart" and "dumb"), and hostile environmental modification (an ancient but still mostly ineffectual means of warfare) continue to be threats to the environment during armed conflict. Disturbingly, environmental

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[424]President William Clinton, Address to the Nation on the Deployment of U.S. Peacekeeping Forces to Bosnia (Nov. 27, 1995), *in* WASH. POST, Nov. 28, 1995, at A8 (transcript also available from Federal Document Clearing House).

[425]In order to limit cross-references, this part of the paper has been divided into sections, one each for parts II through VI. The reader should refer back to those parts for support for the conclusions stated in this part.

destruction during armed conflict is increasing, as may be the toleration for it. Armed conflict is reaching the point of threatening the Earth's carrying capacity, that is, the Earth's ability to sustain human life.

So great are the risks from warfare, protection of the environment from unjustified environmental damage during armed conflict has become a matter of human survival. The developing right to a safe environment and its corollary, intergenerational equity, should be recognized and accepted as customary international law.[426] Protection of the environment needs a status commensurate with its importance to us all. International law must establish its normative base, it must recognize the fundamental rights that give substance to environmental protection.

The new treaty approach would in the long run provide the best protection for the environment during armed conflict. The problems of environmental protection during armed conflict are complex, often technical and scientific, and thus unsuited to the generalities of customary international law.[427] Additionally, legitimate self-defense requirements are often squarely opposed to environmental considerations. Legal solutions to this dilemma will therefore require an interdisciplinary perspective, a perspective reflective of the interdependence of humanitarian and environmental rights and of the dependence of the international community on our shared environment.

A convention-protocol process would be one way, first, to bring needed recognition to the right to a safe environment and intergenerational equity, second, to address the difficult issues associated with establishing a practical threshold for unjustified environmental damage, and third,

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[426] *Cf.* "Using the 'right to environment' approach to incorporate environmental law into the law of war, however, presents several difficulties. First, the link between a right to environment and a right to life has not been accepted as customary international law. Second, deciding which environmental conventions are embraced by the right to environment would be difficult since the substantive boundaries of the right to environment remain undefined. Third, this approach is human-centered in that it focuses on the value of the environment as a human habitat." Simonds, *supra* note 8, at 189-90.

[427] *See* Almond, *supra* note 246, at 5 ("(D)ecision and policy makers . . . often lack the scientific skills and knowledge about the problems that concern them.").

to define the operative terms "widespread, long-term, and severe." This process, building on Protocol I and the ENMOD Treaty, should codify and clarify the protections to be given to the environment during armed conflict. Additionally, this process could provide enforcement mechanisms to the United Nations and to individual states to prosecute war crimes and obtain reparations for environmental damages. Further, the rights and responsibilities of armed forces relative to environmental protection during armed conflict could be prescribed. Unlike the Fifth Geneva Convention proposed by Greenpeace International essential military capability and flexibility must be maintained, although some constriction of "essential" may be in order.

The work of preparing a convention relative to protection of the environment during armed conflict properly belongs with the International Law Commission (ILC). While the ILC is only one of several alternative hosts for the preparatory work necessary for new convention, and may even be one of the slowest-working,[428] it is the most preferable precisely because of its United Nations affiliation.[429] Environmental protection during armed conflict is a subject that must be addressed by the U.N due to its inseparable connections to basic human rights, international peace, and security. The U.N. is the "key forum."[430] The ILC should act before the end of the current United Nations Decade of International Law.

Making new law is not always the best solution to an existing problem, however. It is equally important to consider ways to improve the application and enforcement of existing law. Improvements in these areas may obviate the need for new law.

Are We Likely To Achieve Such A Convention In The Foreseeable Future?

The prospects for achieving a new convention that protects the environment during armed conflict in the foreseeable future are dim. At present, there are no sponsors capable of bringing

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[428]Existing and developing customary and conventional law and the new environmental ethic in national security, foreign policy, and military manuals provide a creditable stop-gap that will allow adequate time for the laborious and politically-contentious work of hammering-out a comprehensive new text.

[429]*See* Helmut Türk, *The Negotiation of a New Geneva-Style Convention: A Government Lawyer's Perspective, in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR 100-102 (Glen Plant ed., 1992).

[430]*See* Plant, *supra* note 140, at 173-77.

such an initiative to fruition and this situation is unlikely to change. This state of affairs does not invalidate the arguments for a multilateral convention, but strategies for development and enforcement of the law must be constructed within this present reality.

The alternative favored by the United Nations, the United States, and the ICRC, as well as most academics - the guidelines approach - will undoubtedly help to institutionalize an environmental ethic among armed forces in peacetime; the United States has begun to embrace a sympathetic posture for its armed forces as evidenced by *The Commander's Handbook on the Law of Naval Operations* provisions on targeting. Environmental protection guidelines should be translated into doctrine where they will do the most good toward inculcating environmental protection into the way armed forces fight. The Joint Chiefs of Staff should consider doctrinal implications when formulating new environmental guidance for all U.S. Armed Forces.

The guidelines approach has several limitations. Guidelines are binding unilaterally only. Bindingness on the international plain depends on the applicability of the sources of international law from which the guidelines were drawn. Guidelines drawn on a pick-and-choose basis and which rely too heavily on untested environmental gloss will do little to provide the environment adequate protection against unjustified damage during armed conflict. Neither will they provide an authoritative source for effective enforcement of the law pertaining to environmental protection during armed conflict.

How Can The Law Pertaining to Environmental Protection During Armed Conflict Be Advanced In The Meantime?

Customary international law, properly developed, is strong, especially those nonderogable norms that fall within the ambit of *jus cogens*. Some view a number of the protections pertaining to the environment during armed conflict as being both customary international law and *jus cogens*. In point of fact, very few, if any, of these protections are either customary international law or *jus cogens*.

Relative normativity is a pitfall to be avoided. The better view is that all accepted norms create binding and enforceable obligations. The lack of *jus cogens* status does not prevent a norm from imposing state responsibility.

Care should be exercised in the formation of customary norms not to over-emphasize *opinio juris* to the exclusion of state practice, even in matters of *jus cogens.* State practice remains an indispensable element in the making of customary international law. The fact that existing law may be interpreted to provide certain protections to the environment during armed conflict does not mean that state practice has yet begun to adhere to this interpretation.

The guidelines approach aids in the law-making process. Not only are military manuals evidence of *opinio juris*, they play a critical role in shaping the conduct of military operations. Military operations are the most important evidence of state practice during armed conflict itself.

The law pertaining to environmental protection during armed conflict must continue to develop progressively. Despite the problems of ambiguity associated with several of the most fundamental concepts - the definition of "environment," the Protocol I standard of "widespread, long-term and severe," and the right to a safe environment, for example - the "scrupulous" observance called for by the ICRC and others will in time provide greater clarity and certainty. For its part, the United States should be sensitive to its tendency to chauvinize international law.

Inadequate enforcement is the weakest link in the area of environmental protection during armed conflict. There are no effective judicial remedies available to hold states or individuals accountable for unjustified environmental damage. War crimes prosecutions are virtually unknown. War reparations have fallen largely into disuse. States lack resolve to seek more than occasional "victor's justice" due to uncertainty in the law and to the desire to preserve sovereign prerogatives.

Effective enforcement requires the means and the commitment to deter, prevent, and punish unjustified environmental damage during armed conflict. Each of these three elements contribute to a strategy of control based on the same principle of limitation as pertains in the law

of armed conflict. The most important restraint is deterrence of the use of force by a prospective belligerent.

Preventative remedies are especially important to environmental protection during armed conflict. Irreversible and irreparable environmental damage can have catastrophic consequences. A complete understanding of the effects of environmental destruction remains beyond our knowledge of the environment. The precautionary principle must be applied to further the conservation imperative. Post-delictual remedies simply cannot meet this need.

What *Is* The Existing Law Relative To Protection Of The Environment During Armed Conflict?

The protections pertaining to the environment during armed conflict may be found in the law of armed conflict, in modern humanitarian law conventions, and in international environmental law.[431] The law pertaining to environmental protection during armed conflict is a newly formed, developing body of law, if indeed one may call it that, which was given shape, largely by extrapolation, as a result of the intense scrutiny brought to bear in the aftermath of the Gulf War. The applicability of this body of law varies with the nature of the obligation (customary or conventional) and by the state concerned.

The most important elements of the law of armed conflict are the principle of military necessity and the Martens Clause contained in the Hague Regulations and repeated in Protocol I. Military necessity is the primary principle underlying the legitimate use of force; however, the

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[431]"(T)here is presently [sic] in existence today a wide range of international/regional treaties or agreements which express a solemn conviction or intention of civilized nations of the world to secure the atmosphere, oceans, and lands constituting the planetary environment from the destructive consequences of war or any other militaristic activities. An international customary law of environmental warfare can no doubt be discernible from these treaties, sufficiently well enough to support a legal assertion that the international community resolutely denounces environmental warfare and accordingly there is a legal obligation on the world nations not to resort to environmental warfare, whether or not they have consented to these treaties or agreements from which these international customary rules are deduced." Okordudu-Fubara, *supra* note 2, at 197. These treaties and agreements include the 1868 St. Petersburg Declaration, the 1907 Hague Regulations, the 1925 Gas Convention, the 1949 Geneva Conventions, the 1959 Antarctic Treaty, the 1963 Test Ban Treaty, the 1967 Outer Space Treaty and Treaty Prohibiting Nuclear Weapons in Latin America, the 1968 Non-Proliferation Treaty, the 1971 Sea Bed Treaty, the 1972 Biological Weapons Convention, the 1977 ENMOD Treaty and Protocol I, the 1979 Moon Agreement, and the 1982 U.N. Convention on the Law of the Sea. *Id.* at 188-96.

principle is criticized for its overuse as a justification for environmental damage and because it does little to deter or prevent environmental damage. The principles of military necessity, humanity, and environmental protection are complimentary.[432] They share a common value system.[433] To the extent that they are incomplete in themselves, they are the "source" for more precise rules governing belligerent practices involving the environment.[434] The Martens Clause remains important, despite the criticism that the Hague Regulations are themselves obsolete, because, through the "law of humanity" and the "dictates of public conscience,"[435] it extends the law of armed conflict to states that have failed to accede to recent developments in treaty law.

Relevant humanitarian law includes the Fourth Geneva Convention and Protocol I. Environmental protections under the Fourth Geneva Convention, like the law of armed conflict, are property-based; they were not developed with the environment in mind. Protocol I makes the largest and most direct contribution. It's "widespread, long-term and severe" standard is already binding on the majority of states (not including the United States) but may not apply to non-international armed conflict or armed conflict in the air or at sea which is not related to armed conflict on land. Some violations of the environmental protections in Protocol I would constitute grave breaches, but many, perhaps most, would not.

As we have observed, the United States' objections to Protocol I have for the most part been overtaken by events. It would be appropriate for the U.S. to re-evaluate its position vis-à-vis ratification. The "widespread, long-term and severe" standard plays a prominent role in the ICRC "Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict." In the absence of a new treaty, Protocol I, along with the principle of military necessity, will be the foundation on which the law pertaining to environmental protection during armed conflict will continue to build.

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[432] Almond, *supra* note 34, at 125; Almond, *supra* note 43, at 335.
[433] Caggiano, *supra* note 2, at 484.
[434] Almond, *supra* note 43, at 333, 335.
[435] *See supra* part V.A.2.

Relevant norms of international environmental law are also essential elements of this body of law, the doctrine of state responsibility chief among them. This doctrine imposes liability on a state for its actions which result in harm to another state and applies during armed conflict. A state guilty of unlawful aggression, including the waging of environmental warfare, will be responsible for any unjustified environmental damage which results. Self-defense, even lawful self-defense,[436] may not be an absolute bar to such liability.

Three "soft" law texts also make significant contributions: the Stockholm and Rio Declarations and the World Charter for Nature. The Stockholm Declaration gave first voice to the concern over the environmental consequences of mass destruction. Ten years later, the World Charter for Nature added additional support to the proposition that environmental damage during armed conflict should be avoided. Ten years after that, the Rio Declaration reminded states of their obligation to protect the environment during armed conflict. These texts, the Rio Declaration in particular, are criticized for their potential for overwhelming liability for environmental damage regardless of the justification therefor under the law of armed conflict.

The ENMOD Treaty, which prohibits the hostile use of certain environmental modification techniques, does not as such protect the environment against damage during armed conflict. The ENMOD Treaty is criticized for its superfluousness to modern armed conflict, *viz.*, that it prohibits only that which is already unattractive militarily. The treaty definitions of "widespread, long-lasting or severe" are persuasive authority for the interpretation of the Protocol I standard of "widespread, long-term and severe."

How Can Existing Law Be Strengthened And Enforced?

The restrained use of armed force can be an effective mechanism for enforcing the existing law pertaining to environmental protection during armed conflict. The U.S. Armed Forces have

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[436]Even an unlawful aggressor may exercise self-defense in response to armed force. The fact that the aggression was unlawful does not divest the aggressor of the belligerent right of self-defense under the law of armed conflict. *See* Neff, *supra* note 35, at 2-3.

assimilated an environmental ethic; environmental security is now a prominent feature of United States foreign policy. The use of restrained armed force is a preventative remedy that can be tailored to meet the exigencies of a situation that arises within a theater of operations. Moreover, the restrained use of armed force can meet all of the objectives of effective enforcement - deterrence, prevention, and punishment. Care must be taken to ensure that the nature and extent of the environmental harm exceeds the threshold over which the use of armed force can be justified.

This is why the Protocol I standard is important. It provides a threshold which separates justified from unjustified environmental damage. In conjunction with the law of armed conflict, other humanitarian law, and international environmental law, the Protocol I standard can fill the void that now exists in the law pertaining to environmental protection during armed conflict. Admittedly, this standard needs further refinement before it will reach a level of clarity that will provide meaningful direction to military commanders and to states, but this is the point and purpose of state practice. As we have noted, the ENMOD Treaty definitions may be used as an aid in interpreting key terms.

Armed forces may be used in a peacekeeping context, which we referred to as "greenkeeping," for such activities as monitoring, reporting, clean-up, and logistical support. This deters environmental damage. During armed conflict, armed forces may also be used to pre-empt environmental damage or to intervene in an on-going conflict to stop environmental damage. This serves prevention, although care must be taken to preclude the encouragement of a "lone avenger." Additionally, armed force may also be used during armed conflict to disable or destroy enemy forces responsible for unjustified environmental damage. This punishes serious violations (grave breaches) of international law occurring in combat. These uses of force help to internalize the costs of unjustified environmental damage to the responsible party, especially to an unlawful aggressor.

Article 2(4) of the United Nations Charter prohibits aggressive war.[437] In its place was erected a system of collective security overseen by the Security Council which under Chapter VII of the Charter is empowered to take action to redress threats to international peace and security including those arising from environmental warfare.[438] The collective security concept, however, has not prevented wars, neither has it placed any appreciable restraints on the destructiveness unleashed on the environment.[439] These two phenomena - destructiveness and self-restraint - are at odds with one another, a tension with which any enforcement mechanism must deal.[440]

The near universal but abstract condemnation of unjustified environmental destruction during armed conflict must be made real.[441] The fight to save the planet from the devastating effects of environmental warfare is not won, it is just beginning. The United States should make environmental protection during armed conflict a centerpiece of its military doctrine and continue to work assiduously to find long-term legal solutions under international law.[442]

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[437]U. N. CHARTER art. 2 ¶ 4; *and see generally* Neff, *supra* note 35.
[438]Okordudu-Fubara, *supra* note 2, at 215-17.
[439]Almond, *supra* note 43, at 309.
[440]*Id.* at 310-13.
[441]Caggiano, *supra* note 2, at 504.
[442]*See id.* at 506. *But cf.* Almond, *supra* note 246, at 21-22 ("(T)here are limits upon what the United States can achieve with its own resources, or even when it attempts coalitions with other states. It is a truism that the United States should not commit funds or assume undertakings unless, in doing so, it foresees that it can modify, reverse, or block environmental harm or damage, or unless it is compelled to react to crises or emergencies that may affect it severely.").